RAILROAD GAZETTE

FRIDAY, MARCH 31, 1876.

Locomotive Fire Box Used on the Pennsylvania Railroad.

Our engravings represent a method of constructing the fire-brick arches used in locomotive fire boxes, which, although extensively used in the passenger engines on the Pennsylvania Railroad, is not very generally known elsewhere. Fig. 1 represents a longitudinal section of the fire box, fig. 2 a transverse section, fig. 3 a plan, and fig. 4 an enlarged view of the thimble on the end of the tubes, by which they are fastened into the fire-box plates.

It will be seen from the engravings that the peculiarity of this fire box consists in the manner in which the fire bricks are supported. These rest on tubes which are fastened into the tube plate below the fire tubes, and extend backward and upward, and at the other end are fastened into the crown sheet. The tubes are screwed into a brass thimble, the outside of which has a tapered screw. This thimble is then screwed into a corresponding hole in the tube or crown plate, and, being tapered, can be screwed up until it is tight. From the engraving it will be seen that four such tubes are used, and that the fire brick rests on these tubes. The heat to which they are exposed produces a violent circulation through them and thus protects them from the action of the fire. This plan has been used for a number of years on the Pennsylvania Railroad, and with great success. Probably with this arrangement and a deflecter over the fire hole, as good results in the combustion of coal can be obtained as with any means now in use. We are inclined to believe, however, that if, instead of leaving the opening for the flame above the fire brick the whole width of the fire box, it was contracted to about the size of the fire hole, better results could be obtained. A water grate is used with this system, and, we believe, on all the engines on that line.

Fig. 1.

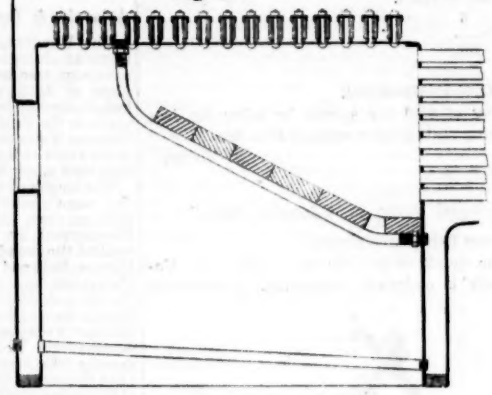
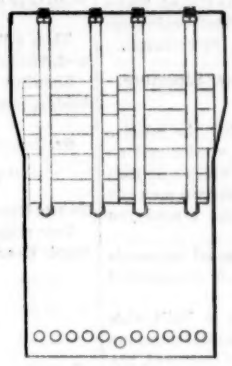


Fig. 2.



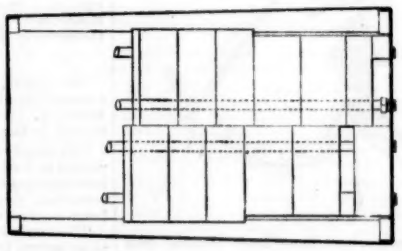


Fig. 3.

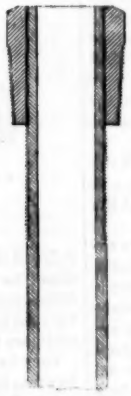


Fig. 4.

LOCOMOTIVE FIRE-BOX USED ON THE PENNSYLVANIA RAILROAD.

Contributions.

Two New Inventions.

CHICAGO, March 1, 1876.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have been around among the western railroad shops during the past six weeks, and have met with some improvements in locomotive construction which I have reason to believe have never been brought before the public, or to the knowledge of railroad men in general. One that I would mention, and the only one of which I can speak at present, is

A CORRUGATED CROWN SHEET.

This crown sheet is made of 5-16 boiler plate steel, the corrugations being 10 inches between centers. In making this sheet the corrugations are made by rollers and extend crosswise to the fire-box. The sheet is then put into the forge and by careful hammer-work the edges, on each of the two sides, crossing the corrugations, to a width of three inches are u set and made straight on the lower line of the corrugations. This is turned down so as to form the flange, fitting the inside edges of the side-sheets, the same as with ordinary crown-sheets. This sheet does away with all crown-bars and is fastened to the shell of the boiler by crow-feet stays, resting and riveted to the upper are of the corrugations. It will be readily seen that this sheet possesses great strength to resist pressure from above, and its cost is over $100 less than the crown-sheets now in vogue. Besides this, it possesses nearly double the heating surface, and, from its peculiar formation, expands and contracts without cracking. The water over it has free course to run from side to side with no obstructions in the channels formed by the corrugations, and there is no lodgment of sediment nor lime formation; but should either of these occur, they can readily be removed from the opening of the dome above, as there are no crown-bars to interfere. I saw a stationary engine boiler having one of these crown-sheets, and though it had no stay-bolts over its entire surface, it has carried 160 lbs. of steam with safety. It is a well known fact that the expansion and contraction of fire-boxes produce a great deal of cracking and leakage; but this evil is entirely prevented by corrugation, in each of the side and back sheets.

Mr. Jas. Pinkett, foreman of the boiler shop of the Chicago & Northwestern Railway, is the inventor of this crown sheet, and has already placed them in 40 locomotive boilers belonging to that company. He also corrugates, though in a much less degree, the back and side sheets of his fire-boxes, and they are found to do double the service of the straight-sheet boxes. Mr. George W. Tilton, Superintendent of Machinery for this company, informed me that they would use no other fire-box hereafter than the one described above.

SAWING COLD STEEL.

While at the new shops of the Chicago & Northwestern Railway Company I saw the drawings of a machine, invented by Mr. John H. Lakey, one of the Master Mechanics of the road, for sawing steel rails, for making frogs and split switches. He has had one of these saws in use at the Turner Junction shops for the past year, cutting steel rails. The saw is circular, 36 inches in diameter, and made of Hussey, Wells & Co.'s boiler-plate steel, turned off to a thickness of ¼ inch. It is run at a velocity of 3,000 revolutions to the minute, and cuts off a 60 lb. steel rail in 11 seconds. It leaves the end of the rail equally as smooth as when cut with a planer or sawed hot. The saw of this new machine is of a peculiar construction and will accomplish in twenty minutes the same amount of labor, in cutting and fitting, that is now required of two men in 10 hours time. This will result in greatly lessening the cost of steel-rail frogs and spht switches.

C. L.

Testing Railroad Appliances at the Centennial.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In view of the great expenditure of time and money in preparing for the Centennial at Philadelphia and that which will be expended by the American people in visiting the great show, it is for our best interests to improve every opportunity of turning it to good account. Those who are familiar with the habits of the Yankee portion of our population may consider any hints on the subject superfluous, as they are not likely to lose sight of anything that can be turned to their advantage. It is possible, however, that in the general scramble some matters of importance and of interest to the public at large may be overlooked and crowded out. The chief object is supposed to be to show the World our progress during the century that we have been a "nation of our own," and to learn what other nations have been doing. We should hardly expect that anything American would not be prominently placed at the Exhibition, in view of the fact that foreigners are preparing for a full exhibition in every department, and from present appearances no department of American industry is likely to fail of a proper representation if we except the railroad interests. Manufacturers and dealers in railroad supplies will doubtless attend to the Exhibition of their wares, but there are some things of importance in railroad matters in which there seems to be a lack of interest and no one to look after them. As a rule, every one will be on hand to show what he considers the best in the land in the way of tools, machinery and fixtures except the railroad superintendent; and unless he is pecuniarily interested in some particular improvement, he will make no effort to show the world that he has the best of its kind for the purpose in use, that his neighbors may benefit therefrom. For instance, may we expect to see a snow plow from New England, Northern New York or the Union Pacific? An exhibition of the most approved apparatus for removing snow and ice from railroad tracks would excite no ordinary interest, not only to our own people, but foreigners would no doubt consider this a valuable feature of the show, and they might learn something that would be of use to them when they get home to a snowy country. The company sending snow plows and apparatus for clearing track might not receive any special benefit from so doing, but it would not fail to be a benefit to the community. Railroad men will visit the grounds to learn what their neighbors are doing, and they should not fail to take sufficient interest in what is going on to make every one glad he went, and send him home with at least one new and valuable idea in his head. There are not a few valuable contrivances that are not in as extensive use as they should be, for the reason that no one has any pecuniary interest in them to bring them into public notice. Some of them have never been patented, and on others the patents have expired, and the companies using them are indifferent as to whether they benefit other companies and the traveling and shipping public or not. Therefore some good things are likely to pass unnoticed in the general search for that which is good unless the Society of Civil Engineers can manage to take the matter in hand. But probably they already have as much work mapped out as they can attend to, although if they could secure the co-operation of the railroad managers, who are the ones really interested, the Society might render the country a valuable service with very little trouble and expense. If railroad men will respond to the call of the Society for contributions, and in doing so will not confine their efforts to sending newly patented articles under the impression that they will be the most popular and most gladly received, but send their switches, snows plows and track clearers, frogs, track tools, such as claw bars, instruments for raising and leveling and elevating tracks with the most approved joint fastenings, patented or unpatented, but which have done service long enough to prove their value beyond a doubt, some good things would be scattered about that are now, as it were, hidden away and jealously guarded, with their light "kept under a bushel." These could be placed in position for actual service in the tracks on the grounds where their workings could be witnessed and a decisive opinion of their merits arrived at at once by visitors.

Something could be done also by way of experiment by which some newly invented articles can be subjected to *working* experimental tests. There is quite a number of new rail joints and fixtures looking for public favor, and these could be given a comparative test on the grounds during the exhibition and the best one adopted by such companies as may be in a condition to put them to immediate use. There is hardly anything in railroad practice of more importance than a cheap and effective rail-splice—one that will keep the joint up to a good surface and protect the ends of the rails from pounding; and one that is durable and not too expensive, with the combined requisites of a *perfect* joint, would be the greatest prize a railroad manager could carry away from the Exhibition. As there are numerous devices in the field in this line, a few of which seem entitled to a hearing, some of the tracks on the grounds could be fitted up with them and so placed that their comparative merits might be decided upon beyond a doubt.

Suppose the owners and manufacturers of such fixtures raise a fund sufficient to defray the expenses of these tests and place it at the disposal of the Society of Civil Engineers for that purpose. By procuring cross-ties uniform in size and placing them uniformly under a few lengths of rails, and having the joint fixtures attached in pairs to connecting pairs of rails, there would be no difficulty in selecting the most perfect rail support in the lot. The material supporting the ties should of course be uniform and the joints to be tested placed where they would do duty alike. The constant movement of rolling stock about the grounds would give pretty thorough tests during the time the Exhibition is to last, and as men from all parts of the world who are interested in this matter will be there to see, it would seem advisable to act in the matter. The West End Passenger Railway Company and the Pennsylvania Railroad will make a good thing out of the Centennial, and they could well afford to give their outside neighbors, the Society of Civil Engineers, and the inventors, a fair chance on their premises to exhibit some of the good things in working order. The Engineers might also take advantage of the time and place for experimenting with a view of ascertaining the vertical strength of rails of different weights and sections. This should be done by subjecting the rails to various degrees of *rolling pressure*, the amount of deflection to be recorded by an instrument or instruments of very simple construction and costing but a mere trifle. What might be learned by a series of properly conducted experiments costing but a trifle would be worth millions of dollars to the railroads of America. These experiments would decide as to the most economical distribution of material in the manufacture of rails, whereby minimum weight would give maximum strength and durability. This, together with proof as to which is the most perfect rail joint in existence for prolonging the life of rails, would be as good as gold to the railroad community. Those who are about to go to the expense of renewals of rails would be especially benefited by these experiments, as they would be able to decide what weight and pattern of rail and what manner of joint fastening would do them the greatest service for the money expended. Rails that have suffered a known amount of wear could be experimented with, and its effect on the strength and life of the rail accurately known. To know just how much traffic a rail of given weight, pattern, process of manufacture and known material will stand would be valuable information for railroad managers who are either building a new road or renewing rails on an old one. When one is purchasing so costly an article as railroad rails and their fixtures he should be able to estimate very closely the *real value* of what he is purchasing. In purchasing rails, with the little that is now known of their strength and lasting properties as regards their various weights and forms, decisions are formed on mere guess work, the rails are bought and put to use, and when worn out others are bought and put in their place. It is known how much these rails

have cost and how much traffic they have carried, but it is not known how much money might have been saved by using rails of some other weight and pattern and some other style of joint fixture. Some of these rails might have been hammered with a pile-driver and their capacity to resist percussive force demonstrated, but this pounding has no similarity to the treatment of the rail when in actual service. What is wanted is to know just how many tons of rolling weight a rail of given weight and pattern will carry before becoming unfit for further use, so that in giving an order for rails the number of tons of traffic they must carry may be specified. Rolling-mill men would find it a very different affair to guaranty rails that would stand a certain amount of abuse with a pile driver from making a rail of given weight do a given amount of work in track.

If, when a railroad manager does a little figuring, he could say for a certainty that "our new rails are down, and they cost $——. We can do $—— worth of business and then we must have a new set," it would afford him great relief; he would not be groping in the dark. Probably there are men who have the means of knowing very nearly how many tons of traffic rails of a certain make will carry, but it is not generally known among men of ordinary railroad experience.

No doubt there are managers who are interested in this matter who would furnish the trifling sum necessary to make these simple experiments, if the Society of Civil Engineers would undertake its management. In these days of crookedness, "no man can tell what man to trust"; but if there is any honor left in this wicked world, it is to be hoped that it may be found with the Society of Civil Engineers. It is exceedingly probable that any fund placed in their hands would be satisfactorily accounted for, and if that body will make an effort in that direction at once, there is yet time to accomplish a great deal before the close of the Exposition. If these experimental rail and joint tests were made at the Exposition, it might lead to the permanent and successful establishment of a "Bureau of Experimental Research," by the Society of Civil Engineers. One cent per mile of road in operation in the United States would pay the expense of these experiments. Small beginnings should not be despised.

WM. S. HUNTINGTON.

How to Find the Annual Cost of any Structure.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The best, if not the only, means of finding the relative economy of two or more structures—say a wooden and an iron bridge—is to find the annual cost of each, which may then be directly compared. As I do not remember to have seen any convenient and general formula for this purpose, I send you the following:

The annual cost of any structure, or the annual payments needed to maintain the structure in perpetuity, is composed of three elements:

1*st. Interest on First Cost.*—If the structure is built with borrowed money interest must be paid as a matter of course and charged against the structure. If it be not borrowed, but furnished by the owner, the case is not essentially different. He takes it from some other investment which would pay interest and is a loser if the new structure does not make him the same return. Any structure which cannot bear this charge of interest is a bad investment. But if the structure be neither built nor bought, but inherited by its present owner, its first cost to him is what he could sell it for, which may be a very different sum from its original cost. If it have no market value, its cost to him is nothing, and he may omit the interest charge entirely.

The general principle is that the cost of any structure is the amount of capital which its owner voluntarily keeps in it, and that on this amount the interest must be charged against the structure.

2d. *Annual Repairs.*—Under this head is included every expense of preserving the property, such as ordinary repairs, watchmen, insurance, etc. If by these means the property is maintained in its original condition, "as good as new," these two elements embrace the whole annual cost. But there are many cases in which this is not true. In spite of the annual repairs, the structure after a time wears out and must be replaced either in whole or in part by a new one. If it be a bridge, it has to be rebuilt; if it be a set of rails, they have to be taken up. This makes a further payment necessary, to wit:

3d. *Annual Payments to the Renewal Fund.*—By this is meant the proportion of the sum finally needed to renew the structure chargeable to each year. If this fund be raised all at once when it is actually needed, the amount chargeable to each year is the total sum divided by the number of years in the life of the structure. But the amount of each contribution will be made very much smaller if it is actually paid each year and each payment improved at compound interest after the manner of an ordinary sinking fund for the extinction of bonds. This method distributes the burden equally over the whole term and makes it much lighter than is possible in any other way. In this discussion I will take it for granted that this is the plan actually adopted.

To express by formula the sum of these elements, let

z = Total annual cost, or the annual payments needed to maintain the structure in perpetuity.

a = First cost.

b = Value of old materials when no longer fit for use in the structure, and also the value of so much of the structure as needs no renewal.

c = Cost of annual repairs.

n = Number of years the structure lasts before renewal.

r = Rate of interest on money.

m = Amount of final value of an annuity of $1.00 compounded each year for n years, $= \frac{(1+r)^n - 1}{r}$

The final cost of renewal $= a - b$. If the renewals should exceed first cost, b will equal the excess, and the total cost of renewal will $= a + b$.

To find the annual payment to the renewal fund, call it p. Then will $1 : m :: p : a - b$.

Whence $p = \frac{a-b}{m} = (a-b)\frac{r}{(1+r)^n - 1}$

The annual interest charge will be $= a\,r$.

The total annual cost of the structure will therefore be

$$z = a\,r + c + (a-b)\frac{r}{(1+r)^n - 1}$$

The factor $(1+r)^n$ is the amount of one dollar at compound interest for n years, and may be found in any ordinary table of compound interest. But the best way is to tabulate once for all the values of the whole expression $\frac{r}{(1+r)^n - 1}$ for different values of n for the given rate of interest. This done, the formula is very easy of application.

As an example of its use, let the problem be to determine the relative economy of a wooden and an iron bridge for a given place. Let the length of the bridge be 750 ft., or 5 spans of 150 ft. each, and let the other data be as follows:

For the wooden bridge:

a = First cost = $25 per ft. = $18,750.

b = Value of the iron when the bridge is worn out = say $2 per ft. = $1,500.

c = Cost of annual repairs, watchmen, etc., = $1,000.

n = Life of the bridge = 10 years.

r = 6 per cent. $= \frac{6}{100}$.

Then will

$z = 1{,}125 + 1{,}000 + 17{,}250 \times 0.07587 = \$3{,}484$.

For the iron bridge:

a = First cost = $60 per ft. = $45,000.

b = Value of old materials = $7.50 per ft. = $5,625.

c = Annual repairs = $150. (Watchman not needed.)

n = Life of bridge = say 60 years.

r = Rate of interest $= \frac{6}{100}$.

Then will

$z = 2{,}700 + 150 + 39{,}375 \times 0.001875 = \$2{,}924$.

Showing a saving of $510 per annum by using the iron bridge, to say nothing of its greater security from fire.

R. MOORE.

ST. LOUIS, March 8, 1876.

"The Unequal Wear of Opposite Rails."

TO THE EDITOR OF THE RAILROAD GAZETTE:

Your article in the *Gazette* of the 17th inst. upon "The Unequal Wear of Rails" is eminently reassuring. Some of my

railroad friends, whose countenances have been clouded ever since the appearance of the article upon the newly-discovered disturbing element to the successful maintenance of track, viz., the rotation of the earth upon its axis or the revolution in orbit, are now restored to serenity.

They had given themselves over to the study of La Place, Newton, Herschel and Maury, and having observed the motions of the planets, the course of the trade winds and the great Gulf Stream currents, had just begun to get down to the practical mode of avoiding this fearful side pressure and consequent wear of rails by providing moveable weights on each car to enable us "to trim ship" according to the direction of the train—north or south.

Fortunately I am on an east-and-west road, part of it running with the northern and partly with the southern hemisphere trade winds; I therefore made up my mind some time ago to look for local causes for the unequal wear of rails, and although I must discard a part of the "rotary theory," I nevertheless denounce a certain great body formerly counted as a simple satellite of our more important atom, earth, and reputed as passing through a crevice in it; but which our modern lights tell us is not only provided with an axis of its own, but doubtless moves around a center too fathomless for eye, telescope, or even imagination to take in.

The great body, commonly known as "the sun,' a revolutionary agent nevertheless, in addition to its other duties, benignly comes forth to dry up the mud in our ditches; at the same time thawing under the cross-ties more on one side than on the other, with succeeding Winters, it depresses the track unevenly, until, without watchfulness, all is out of joint.

Now that you and I agree in ascribing this great wrong to the true culprit—which is also the source of light and heat—I would suggest that we diligently avail ourselves of the good that is in him to repair his misdeeds. To this end we must call in the aid of square, compass and level.

Carlyle says that it is in and through symbols that we live, move, and have our being. In this faith I have invented a sign for my trackmen, combining the three great tools, by the use of which the unequal wear of rails may be prevented.

I herewith present this emblem for the guidance of the Knights of the Shovel and the Pick, those faithful protectors of lives and property, to whom are confided the interests of track. The motto, too, "*In hoc signo vinces*," is none the worse for being old—as old as the time of Constantine (some years before the invention of railroads); and please note that the square and level form something like St. Andrew's cross. In the absence of Latin dictionaries, I assume that a translation of my motto, although more wordy than the original, will not come amiss: "Use well and understandingly these three implements of your craft, and you will keep your track in order and have no inequalities in the wear of your rails; the rotation of old mother earth to the contrary, notwithstanding."

CHARLES LATIMER.

Transportation in Congress.

In the Senate, on the 23d:

Mr. Jones, of Nevada, introduced a bill to prohibit the transportation of liquid nitro-glycerine, and to regulate the transportation of dynamite. Referred to the Committee on Commerce.

In the House, on the 23d:

Mr. Stone, of Missouri, introduced a bill fixing the compensation of railroad companies for the transportation of the mails. Referred.

In the Senate, on the 27th:

Mr. Cameron, of Wisconsin, from the Committee on Commerce, reported favorably on the bill to construct a pontoon bridge across the Mississippi River from some feasible point in La Crosse County, in Wisconsin, to some point in Houston County, in Minnesota. Placed on the calendar.

In the Senate, on the 28th:

Mr. Wright, of Iowa, introduced a bill to charter the Sioux City & Black Hills Railroad Company. Referred to the Committee on Railroads.

ANNUAL REPORTS.

Atlantic & Great Western.

The Receiver, Gen. J. H. Devereux, has submitted to the Court an elaborate report from the time the property of the company was transferred to the Receiver, Dec. 10, 1874, to the close of 1875, embracing thus one year and 22 days. Just before the receivership, a report similarly elaborate had been made to the President of the company (now Receiver) by Mr. Thomas Warnock, Auditor, covering the transactions of the three years ending with September, 1874, which gave for the first time many facts in the history of the company.

The length of road transferred to the Receiver was 605 miles, the same that had been worked by the company for the previous year. May 26, 1875, five months and 15 days later, the contract by which the Atlantic & Great Western had worked the broad-gauge track of the Cincinnati, Hamilton & Dayton Railroad from Dayton to Cincinnati, 60 miles, was abrogated; and July 12 thereafter the Receiver surrendered the Niles & New Lisbon Railroad (35 miles) and the Liberty & Vienna Railroad (8 miles) to the Cleveland & Mahoning Valley Railway Company. Thus he worked 605 miles for the 5⅓ months from Dec. 10, 1874, to May 26, 1875; 545 miles for 1½ months from May 26 to July 12, 1875; and 502 miles from July 12 to the end of the year, 5⅓ months. This gives an average of 552 miles worked for the whole period covered by the report, on 584 miles for one year.

The lines in the hands of the Receiver at the close of the year were:

	Miles.
Atlantic & Great Western, Salamanca, N. Y., to Dayton, O....	387.50
Meadville to Oil City, Pa.....	33 00
Cleveland & Mahoning Railroad, Cleveland to Sharon, Pa....	81.50
	502.00

The report, of 30 quarto pages, consists chiefly of full and extraordinarily clear tables signed by the Auditor, Mr. Thomas Warwick. These are prefaced by the following statement signed by the Receiver:

"In briefly commenting upon the financial results of this period of little more than a twelvemonth, and referring to the previous special report of the first six months' operations, it is remarked that, throughout the year of 1875, the lines have been worked under unusual and difficult circumstances.

"Not only has the through traffic of the lines been handled at an actual loss during a considerable portion of the year, the rates upon such freight *having fallen below* the excessively low rates of 1874, and with all rates most injuriously affected by a bitter and prolonged contest, inaugurated between the southern trunk roads; but, in addition to this trouble, had come the exceptional loss of revenue by the extended strike of the miners of the Mahoning Valley.

"Nothing can more plainly show the paralysis of the local traffic which had occurred than the simple statement of the first half-year's results of the operation of the Cleveland & Mahoning Valley Railway.

"*From December* 10, 1874, *to June* 30, 1875, that portion of the line showed an *actual loss* in operation of $12,807.38. But, the miners resuming work during the latter part of June, the result of the following *month* (July) upon the Mahoning Division, was a *surplus earning, over and above all expenses and rental*, of $43,878.92.

"Yet, for the remainder of the business season, it was not found possible to make good the great loss in local revenues, and the movement of business generally was feverish and irregular.

"Attention being given to table No. 8, the facts as to tonnage and rates will fully appear. During 1874 the rate upon local freight traffic was 1.636 cents per ton per mile, and upon through freight but 0.837 cent per ton per mile. With the iron rails and steep gradients of the Atlantic line, and in connection with the difficulties incident to its exceptional gauge, the minimum of freight rates *seemed* to have been reached in 1874. And yet, mainly from the effects of a disastrous trunk line rivalry, but in connection also with the continuance of a disturbed and uncertain condition of the business of the country, the rate for 1875 upon through freight is seen to be 0.694 cent per ton per mile, and the average rate of all freight has fallen to 1.015 cents per ton per mile.

"If but for the exceedingly low freight rates obtaining in 1874 had prevailed in the case of the past years' tonnage, it is seen that even then the net earnings of the railway would have been increased by $615,122.39.

"It is not possible to transport freight upon this line, within the compass of minimum cost, at the average of the through rate of the past year, and the result has been an apparent loss upon the through freight transported, of $230,463.60.

"Still, in considering the question of fully meeting the interests of all communities served by the road, and in retaining the legitimate traffic of the line in which through and local requirements are, to a large extent, inextricably blended, and while such requirements should be considered, both through and local, in one aggregate result as to net earnings, it can be safely said, at least, that the course pursued of fostering to the fullest extent all local interests, and measurably disregarding

increase and encouragement of the through freight traffic, was indeed a wise and judicious policy, and which has been followed throughout the year.

"All this should be borne in mind in forming a conclusion as to the prospective value and earning capacity of these particular properties; for it would appear that the peculiar circumstances and conditions of business and of transportation affairs existing throughout the past year were not likely to become chronic, involving such a dead-lock in the mining and manufacturing interests of the Mahoning Valley, and the abiding continuance of so extraordinary a depression in the matters of rate and profit.

"It would seem fair, therefore, to regard the net revenue of the year's operations as exceptional, while in the thorough and faithful maintenance of the road, its equipment and appurtenances, judicious care has been given, and no needed expenditure has been withheld.

"Again, referring to Table No. 8, it will be observed that the *total* freight *tonnage* transported in 1875, does not very greatly vary from the amount handled in 1874, when the gross tonnage attained its maximum. And it will also be seen there is an *excess of through tonnage* in the year just closed, as compared with 1874.

"It is again the question which addresses itself, not to this nor to any other single line, but to most of the Western roads, viz.: of obtaining relief from the great burden of loss involved in the past year's experience particularly, and which is to be secured mainly by reasonable and remunerative rates for transportation service.

"The tonnage of ore has been equally affected with the bituminous coal traffic, but the other great staple of the road's business, oil, has been more than maintained. Table No. 14 shows the comparative statement in these matters, and in Table No. 13 it is shown that there has been an increase in the shipments of anthracite coal for the year as compared with 1874.

"In the final comment upon the bearing of expenditures connected with all traffic, it will be borne in mind that the largest portion of the equipment used on the lines is under lease, paying a rental equivalent to *fifteen per centum* of the value of such cars and locomotive engines at their cost of some years ago (much higher than the current value of to-day), and with such equipment maintained to standard at the expense of the lessee. Such rental for cars and power must, from the conditions of the case, necessarily be high to secure to their owners fair compensation in view of all risks, loss and contingencies.

"But no ordinary railroad traffic at this time can be burdened with such cost of accommodation in its equipment service with hope of any considerable surplus earnings.

"The result of operating the Meadville Hotel, and the causes inducing its continuance, were set forth in the previous special report of the Receiver. No possible advantage incident to the hotel can compensate for the loss shown in the year's experience, and arrangements have been made, without any probable detriment to the passenger traffic or to any other interest, to close the hotel on the 29th February next. The provisional running arrangements for the main line traffic over the Cincinnati, Hamilton & Dayton Railroad have, from circumstances beyond the control of the Receiver, continued since the last report. The new contract with that company has, however, finally been assented to in connection with the Receiver of the Erie Railway, and is to take effect on March 1, next.

"Steam hoists for the speedy and economical changing of car bodies, loaded or empty, from broad to narrow-gauge trucks, and *vice versa*, have been erected at Leavittsburgh, Mansfield and Dayton.

"The time occupied in transferring a regular through passenger coach from one set of trucks to another, varies from three to five minutes. Freight cars may be thus transferred at the rate of two hundred cars every ten hours through a single hoist. The good results of the hoists will be the more certainly shown during another year, the Leavittsburgh hoist having been completed at the beginning of November, the Mansfield hoist not having been finished before the close of the year, and the Dayton hoist not yet in full running order.

"At Leavittsburgh, the operation of the hoist, in its effect upon *local* freight traffic, has considerably reduced the number of men employed heretofore in transfer freight service; and, with other matters of policy determined, nothing is in the way of at once taking up the broad-gauge track between Leavittsburgh and Cleveland, greatly reducing the operating expenses of the Mahoning Division by the maintenance of but one gauge upon the ties (instead of the two gauges of rails as now), and yielding a surplus of 7,000 tons of rails to be used elsewhere.

"The hoists at Leavittsburgh and at Mansfield were put in with the co-operation of the Erie and the Baltimore & Ohio railroad companies, and in connection with the said two roads, a new passenger line (partially with the Cleveland, Columbus, Cincinnati & Indianapolis Railway), being formed between Chicago and New York *via* Leavittsburgh; and a new freight line being formed between the same cities *via* Mansfield.

"The establishment of the line *via* Mansfield involved at once an arrangement for the accommodation of five stock at that point. Full details as to the cost of these hoists and the Mansfield stock yards, with other particulars, appear in the annexed tables."

Table No. 2 gives the earnings and expenses as follows:

Sources of Earnings.		
Freight		$3,094,856 17
Passengers		851,526 26
Mail		45,567 32
Express		66,926 66
Miscellaneous, as follows:		
Switching for other companies	$29,607 82	
Dockage, storage, etc	11,453 24	
Telegraph receipts	6,375 03	
News agency on trains	1,701 58	
		$49,137 67
Total earnings		$4,108,014 08
Operating Expenses.		
Salaries		$114,224 29
General operating expenses		344,038 89
Station expenses		247,920 36
Train Expenses		923,135 19
Maintenance of locomotives		372,336 59
" " cars		339,127 28
" " way		712,820 56
" " buildings and docks		65,165 96
" " fences		26,331 38
Loss and damage		16,272 29
Legal expenses		17,325 81
Profit and loss		7 60
Total operating expenses		$3,178,727 18
Total earnings		$4,108,014 08
Deduct operating expenses		3,178,737 18
Balance net earnings		$929,276 90
Operating cost		77.38 per cent. of earnings.

These earnings were at the rate of $7,036 per average mile of road worked one year, and the expenses at the rate of $5,443, leaving $1,593 per mile as net earnings.

Table No. 1 gives all the items of earnings and expenses per month, showing that the proportion of expenses varied from 97.90 per cent. in May to 65.36 per cent. in November, and in four months of the thirteen the rentals of rolling stock and leased lines and other similar charges not counted in operating expenses exceeded the net earnings of those months.

The disposition of the net earnings is shown in the latter part of the following

INCOME REPORT:

Income from Operation		$929,276 90
Income from Other Sources, viz.:		
Rent of real estate	$1,765 41	
Rent of buildings	1,740 84	
Interest on cost of Oil Creek bridge	1,882 94	
Recoveries, for goods stolen	88 26	
Receipts from operating ore docks	3,171 43	
		8,618 88
Total income		$937,895 78
Deductions from Income:		
Use of foreign cars and engines	$284,946 55	
Rent of Cleveland & Mahoning Railroad	290,492 39	
Rent of Cincinnati, Hamilton & Dayton Railroad to 26th May, 1874	62,354 94	
Rent of Sharon Branch	3,177 42	
Rent of docks and lots	6,055 11	
General Profit and Loss, consisting of:		
Stationery out of use	$144 62	
Money stolen out of ticket office at Youngstown, April 21, 1875	45 64	
Loss operating and repairing Meadville Hotel and dining-room, from Dec. 10, 1874, to Dec. 31, 1875	18,123 41	
W. Richards & Sons' debt, uncollectable	1,168 93	
	19,482 60	
General expenses	25,635 27	
General interest and exchange	13,109 22	
Taxes	26,935 83	
Expenses of A. & G. W. R. R. Co	21,552 45	
		753,741 27
Net income		$184,154 51
From the net income as shown above		$184,154 51
The Receiver expended for additions		125,743 04
Surplus		$58,411 47

The general balance sheet shows that the Receiver paid liabilities of the company during his receivership exceeding by $350,371.49 the assets received by him from the company, and this with $125,743.04 expended by him for additions to the property makes a total of $476,114.53 expended for the company, and not available for assets. The net earnings, after deducting the rentals and other charges and losses, left a balance of $184,154.51, so that $291,960.02 of these expenditures were in excess of the receipts. The amount of liabilities at the close of the year were $1,135,978.79; the assets, including supplies on hand, were $844,018.77; the difference, as above, $291,960.02. As the Receiver had paid $350,371.49 more for liabilities of the company than the value of the assets received from it, the difference, $58,471.47 represents the earnings during the receivership over and above all the expenditures made on account of said receivership. The financial condition of the Receiver at the close of 1875 is given in table No. 6 as follows:

Synopsis of the Financial Condition of the Receiver of the A. & G. W. R. R., Dec 31, 1875.

As shown by balance sheet of above date, the Receiver owed	$1,135,978 79
From which deduct receiver's certificates, and those accounts for which certificates are to be given	334,058 40
And it will leave this amount due in cash	$801,920 39
If the Receiver's "*Live Assets*"* be deducted, which amount to	504,473 79
It will leave this amount due, for which there are no assets to meet it except the supplies on hand, which amount to	$297,446 60 332,912 90
And show this surplus	$35,466 30
Another View.	
The Receiver owed	$1,135,978 79
From which deduct the Live Assets	504,473 79
And it will leave a balance of, for which provision has to be made.	$631,505 00
The Receiver paid liabilities of the A. & G. W. R. R. Co. amounting to	$1,009,142 27
And has only received from the assets of that company, cash amounting to	281,392 28
Showing this sum	$727,749 99

which the Receiver has paid in cash for the liabilities of the A. & G. W. R. R. Co. out of his earnings over and above the cash he has collected from the assets of that company, which, if repaid him, would enable him to pay his whole indebtedness.

In order to make an accurate comparison with the earnings of the previous year, a table is given in which the earnings and expenses of the lines given up within the year are given for the part of the year during which they were not worked by the Receiver. This shows that the earnings and expenses of the entire 605 miles originally received by the Receiver were for the year and 22 days:

	1875.	1874.	Decrease.	P. c.
Earnings	$4,337,402 66	$5,014,352 38	$676,949 72	13.5
Expenses	3,290,293 86	3,781,806 60	491,512 74	13.0
Net earnings	$1,047,108 80	$1,232,545 78	$185,436 98	15.0

These net earnings from 1875 are $117,832 greater than the net earnings of the roads actually worked by the receiver; but as the rentals that would have accrued in excess of the amount paid under the new contracts would have been $218,304, there was a large saving by surrendering the lines.

From the tables we compile the following statement of the traffic of the year:

FREIGHT TRAFFIC.

	1875.	1874.	Inc. or Dec.	P. c.
Tons of freight carried—				
Local	1,933,008	2,253,864	Dec.. 320,856	14.2
Through	617,868	583,256	Inc.. 34,612	5.9
Total	2,600,876	2,837,120	Dec . 236,244	8.3
Tons hauled one mile—				
Local	136,520,349	150,534,051	Dec.. 14,013,702	9.3
Through	168,325,876	166,321,805	Inc.. 2,004,070	1.2
Total	304,846,225	316,855,857	Dec.. 12,009,632	3.8
Freight revenue—				
Local	$1,925,914 08	$2,463,973 70	Dec..$538,059 62	21.9
Through	1,168,942 09	1,392,511 11	Dec.. 223,569 02	16.0
Total	$3,094,856 17	$3,856,484 81	Dec..$761,628 64	19.7
Receipt per ton per mile—				
Local	1.410 cts.	1.636 cts.	Dec.. 0.226 ct.	13.8
Through	0.694 "	0.837 "	Dec.. 0.143 "	17.1
Average	1.0152 cts.	1.217 cts.	Dec.. 0.2019 ct.	16.6
Cost per ton per mile	0.8313 "	0.9707 "	Dec.. 0.1394 "	14.3
Profit per ton per mile	0.1839 "	0.2464 "	Dec.. 0.0625 "	25.0
Average earnings per ton carried	$1.18.9928	$1.35.9296	Dec.. 16.9368	12.4
Average cost per ton carried	0.97.4420	1.08.4085	Dec.. 10.9665	10.1
Average profit per ton carried	21.5508	27.5211	Dec.. 5.9703	21.7
Average miles of haul per ton	117.20	111.68	.....	....
Average number of tons per car	5.97	5.90	.....	....
Average number of cars per train	15.70	15.80	.....	....
Average tons per train	93.73	93.22	.....	....

* "Live Assets" are those, other than doubtful debts and supplies on hand, which are not available to pay debts.

PASSENGER TRAFFIC.

	1875.	1874.	Inc. or Dec.	P. c.
No. passengers carried—				
Local	921,696	1,021,346	Dec.. 99,650	9.8
Through	77,334	87,730	Dec.. 10,396	11 9
Total	999,030	1,109,076	Dec.. 110,046	9.9
Passengers carried one mile—				
Local	20,887,619	23,441,959	Dec.. 2,554,340	10.9
Through	15,082,257	17,652,621	Dec.. 2,570,364	14.6
Total	35,969,876	41,094,580	Dec.. 5,124,704	12.4
Passenger revenue—				
Local	$588 932 31	$664,281 05	Dec.. $75,348 74	13.3
Through	262,593 95	309,621 39	Dec.. 47,027 44	15.2
Total	$851,526 26	$973,902 44	Dec .$122,376 18	12.6
Receipt per passenger per mile—				
Local	2.819 cts.	2.833 cts.	Dec.. 0.014 cts.	0.05
Through	1.741 "	1 754 "	Dec.. 0.013 "	0.08
Average	2.3673 cts.	2.3699 cts.	Dec.. 0.0026 cts.	0.01
Cost per passenger per mile	1.8799 "	1.5180 "	Inc... 0.3619 "	4.00
Profit per passenger per mile	0.7874 "	0.8519 "	Dec.. 0.0645 "	7.80
Average earnings per passenger carried	85 2353 "	87.8120 "	Dec.. 2.5767 "	3.0
Average cost per passenger carried	56.8840 "	56.2437 "	Inc... 0.6403 "	1.20
Average profit per passenger carried	28.5913 "	31.5683 "	Dec.. 3.2170 "	12.00
Average passenger journey, miles	35.98	37.32	Dec.. 1.34	3.6
Average passengers per car	10.9	11.6	Dec.. 0.7	6.0
Average No. cars per train, including sleepers and baggage	3.6	3.9	Dec.. 0.3	7.7
Average No. cars per train, not including baggage	2.7	2.9	Dec.. 0.2	7.0
Average No. cars per train, not including sleepers and baggage	2.1	2.4	Dec.. 0.3	12.5

The report makes a statement of the increase in net earnings that would have been the result if the rates in 1875 had been as high even as the very low rates of 1874.

The increase would have been—	
From freight	$615,122 39
From passengers	600 10
Total	$615,722 49

Which is very nearly two-thirds of the actual net earnings.

Detailed statements of ore, oil, bituminous and anthracite coal traffic for four years, show the following results:

Coal:	1871-72.	1872-73.	1873-74.	1874-75
Tons carried	84 1,463	763,973	811,414	727,(4(
Revenue	$687,800	$598,659	$698,889	$613,641
Earnings per ton	81.64 cts.	78.60 cts.	86.10 cts.	84.40 cts.
Ore:				
Tons carried	255,765	242,806	240,289	176,047
Revenue	$309,297	$285,149	$223,744	$126,899
Earnings per ton	120.90 cts.	117.40 cts.	92.70 cts.	72.08 cts.
Oil:				
Barrels carried	928,426	1,260,328	2,567,590	2,509,995
Revenue	$261,408	$441,813	$730,269	$750,762
Earnings per barrel	28. 6 cts.	35.10 cts.	28.40 cts.	29.87 cts.

These three staples in 1874-75 yield one-half of the total freight earnings. The income from coal has been variable, and was for the last year about 12 per cent. less than the previous year. The income from ore has decreased constantly. The traffic and income from oil have increased steadily and were nearly three times as much in 1875 as in 1872, while the revenue from oil was more than one-fourth of the total freight revenue.

Getting Inside a Railroad.

The Springfield *Republican* has the following: "State Director Hayes reminds us of a Pacific Railroad government director of Andrew Johnson's time. When Hayes was chosen he went to headquarters and asked what his privileges were. When the impecunious Democrat received his nomination from President Johnson, he inquired of a knowing brother how to 'get inside.' 'You see,' he remarked, 'I'm hard up, and this is the first thing I've got from an ungrateful republic. Now, I can't go fooling around on the outside of this business. I want to get at the bottom, among the very elect, right off. How is it to be done?' 'Well, do you know Frank Blair?' 'No.' 'Nor Oakes Ames, nor John B. Alley?' 'None of them.' 'All closed on that track there. Well,' reflectively, 'there's Daniel L. Harris; he's also government director; he'll know all about it; go right to him and tell him what you want.' And he went, but we never heard whether he got in or how he came out. Still, we think State Director Hayes missed it that he didn't seek the same authority, when he went searching around for his privileges and his opportunities. True, it isn't the fashion to let Harris into the inside, but he has almost a burglar's genius for breaking in, and what he don't know about what's going on isn't generally worth knowing."

How Dynamite is Carried.

An exchange says: "On an incoming train Saturday on a Western railroad, some passengers were together in the palace car and discussing the Bremerhaven explosion, whence they actually digressed to the carriage of explosives. One man contended that it was impossible to prevent or detect this—if people were not allowed to ship nitro-glycerine or dynamite legitimately, they'd smuggle it through in their baggage. This assertion was contradicted emphatically, and the passenger was laughed at, flouted and ignominiously put to scorn. Rising up in his wrath he drew a capacious leather valise from under the seat, and slapping it emphatically on the cover, said: 'O, you think they don't, eh? You're playing me for a sucker, are you? Don't carry explosives in cars? What's this?' and he gave the valise a resounding thump. 'That's two hundred good dynamite cartridges in that ar valise; sixty pounds of deadly material; enough to blow this yere train and the whole township from Cook County to Chimborazo. That's dynamite enough,' he continued, but he was without an auditor, for the passengers had fled incontinently, and he could have sat down on 22 seats if he had wanted to. And the respectful way in which the baggagemen on the out-going trains in the evening handled the trunks and valises was pleasant and unusual for to see."

Destroying Stock.

Killing stock recklessly is a common charge against railroads in new countries, where there are usually no fenced pastures and no fences to the railroads, and every company has an account, sometimes quite formidable, of expenses for stock killed. But we never had heard that stock raising is prevented by railroads, until this week, when it was reported that the Atchison, Topeka & Santa Fe Railroad had killed the entire stock of cattle in a whole county on its extension. And yet this company is trying to settle the country on its line by recommending its advantages for stock raising. (The stock of the county referred to consisted of one cow.)

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CONTENTS.

	Page.
ILLUSTRATIONS:	
Locomotive Fire-Box Used on the Pennsylvania Railroad	139
The Trackman's Symbol	140
CONTRIBUTIONS:	
Two New Inventions	139
Testing Railroad Appliances at the Centennial	139
How to Find the Annual Cost of any Structure	140
The Unequal Wear of Opposite Rails	140
EDITORIALS:	
Chicago Connections of New York Roads	142
The Atlantic & Great Western	142
Good Work which does not Win Credit	143
EDITORIALS:	
The Gilbert Elevated Railroad	143
Record of New Railroad Construction	143
EDITORIAL NOTES	143
GENERAL RAILROAD NEWS:	
Transportation in Congress	140
Annual Reports	140 and 147
Elections and Appointments	144
Personal	144
Traffic and Earnings	144
The Scrap Heap	144
Old and New Roads	145
Railroad Law	148
Locomotive Returns, December, 1875	148
MISCELLANEOUS:	
The Late Charles Danforth	141

Editorial Announcements.

Passes.—*All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.*

Addresses.—*Business letters should be addressed and drafts made payable to* THE RAILROAD GAZETTE. *Communications for the attention of the Editors should be addressed* EDITOR RAILROAD GAZETTE.

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay,* EXCEPT IN THE ADVERTISING COLUMNS. *We give in our editorial columns* OUR OWN *opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to* ALL DEPARTMENTS *of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

CHICAGO CONNECTIONS OF NEW YORK ROADS.

The Canada Southern Railway, according to a letter addressed by Mr. W. A. Thomson, the late President, to the people on the line of the road, is now wholly in the control of the Vanderbilts. The Commodore, according to Mr. Thomson, "owns a large majority of the stock and a considerable amount of the first-mortgage bonds of the company." Near the beginning of this year a report that Commodore Vanderbilt had been chosen President of this company was published and immediately contradicted officially. Of course it makes little difference who is President, so long as the road is owned by this interest, which will dictate its policy at any rate.

When the construction of this road was begun, some years ago, we suggested that it might form a freight road for the Lake Shore, and be used so as to obviate the necessity of constructing separate freight tracks for that road at some future time. Since then the Lake Shore has completed its second track from Buffalo to Toledo, and now, probably, can accommodate its present traffic very well without additional tracks. But business is not likely to remain stationary, and it may well be cheaper to acquire a third line for freight even though the old tracks are not yet crowded, provided such a line can be had very cheaply. Now the Canada Southern doubtless was bought at a bargain. It has never earned the interest on its bonds, and the latter could be had for little more than half their face, while the stock could hardly have had any market value, if it had not been wanted to control the company. But this road is probably easier in grades and curves than any other of equal length in the world. Put into thoroughly good order, engines can haul over it heavier loads than on any other trunk line. The local traffic is too small to interfere materially with through trains, and even with its single track, if devoted to freight alone, the road has great capacity.

We do not know, however, what purpose the road is now intended to serve. Some stock speculators have seen in the purchase an intention to give the New York Central a new Chicago connection, and to abandon the Lake Shore. If there was no traffic west of Buffalo except Chicago traffic, this would not be so improbable; but with the immense traffic originating on the Lake Shore itself, and coming to it from the South, it is hardly possible that any party will give it up so long as they can control it, at least not for the Canada Southern, which passes through no large towns, and seems planned to avoid local traffic.

It has heretofore seemed possible that the Michigan Central might obtain the Canada Southern as a substitute for the Great Western, or that the Canada Southern might sometime combine with the Erie, or with the new Lake Ontario line. The Michigan Central might still make its principal connection over this road, doubtless, but it no longer has a chance to control it; the Eastern lines, which might desire to perfect their connections beyond Buffalo now must look to the Great Western or Grand Trunk for any special combination. The New York Central has had an immense advantage in its close connections with the Western roads. The Erie's exceptional gauge prevented its taking full advantage of such connections, even if it had been able to control the roads; and no other line competed for the traffic at Buffalo and the Niagara River. But the Erie will probably have a standard-gauge track within a year or two, and there will be before that time a third line from New York to Niagara River, anxious to get business, and ready to conciliate connecting roads for that purpose. The Lake Shore, which carries the heaviest traffic, has, however, long been under the control of the New York Central (though by no means giving that road all its traffic), and though there are three other roads west of Buffalo, the Michigan Central brings all of these by far the larger part of their traffic. Still, either the Canada Southern or the Grand Trunk could be extended to Chicago with comparatively little expense, and so form an independent connection for the enterprising Eastern line that might be seeking for a Chicago line of its own. By the New York Central's control of the Canada Southern, one of these possibilities is eliminated. Should the Erie or the soon-to-be-completed Lake Ontario line look for a Western connection in its special interest, the alternatives left are the Grand Trunk and the Great Western, both reaching Detroit and at present no further west, and both, as we have said, chiefly dependent on the Michigan Central for their through traffic.

Now it has been represented for some months past that the control of the Michigan Central has also been secured by New York Central men. We do not know that there has been anything to confirm this further than the fact of a considerable transfer of stock from Boston to New York holders, and the submission of the Michigan Central to the wishes of the New York Central in substituting Wagner for Pullman sleeping cars. Neither of these facts, however, proves anything. The Michigan Central is compelled to cultivate the good-will of the New York Central so long as the latter is the only outlet for its great New England traffic—its most valuable business. On the other hand, several of the Michigan Central directors are also directors of the Rome, Watertown & Ogdensburg and the Delaware, Lackawanna & Western companies, which will own the new route from the Niagara River to New York. There is, to be sure, reason why the New York Central might desire to control the Michigan Central, with its very large traffic, and it is on this account, perhaps, that ready credence has been given to the report that it does control it.

Should this report be well founded, then we might expect a combination between the Canada Southern and Michigan Central, and there would be left available for other roads from New York to the Niagara River only the Great Western, reaching no further than Detroit, and the Grand Trunk, which can have a new connection to Chicago by way of Sarnia by the construction of about 50 miles of new road in Michigan—a line with light local traffic and no valuable connections, but still reaching Chicago and able to bid for a share of the great Chicago traffic. This would be better than nothing doubtless, but a line with such connections only by the side of the New York Central fed by the traffic of the Lake Shore and the Michigan Central roads would not cut much of a figure.

The Erie has now a very good Chicago connection by way of the Atlantic & Great Western and the Baltimore & Ohio's Chicago line. This connection has probably been preserved to it by the fact that it and the Atlantic & Great Western have the exceptional 6-feet gauge, and one cannot very well get along without the other, so long as both preserve this gauge. But the Erie has already begun a change which, when completed, will enable it to seek other alliances, and both it and the Atlantic & Great Western must soon be reorganized.

When the reorganizations are completed, it may be that the new companies will be controlled by new men who will change the relations of the lines. The Atlantic & Great Western may be connected with the New York Central about as well as with the Erie, when its gauge is changed, as it doubtless will be sooner or later, and one of the things the Erie has to guard against in reorganizing is this possible loss of its chief connection. It is not impossible that, after having the road healthily reorganized and put in condition to do business economically, the Erie proprietors might find all its Western connections absorbed by rival companies, and it left with driblets of through rail traffic, with lake traffic got only in competition with the canal, and its excellent local traffic.

Men are apt to forget that a time of financial difficulty, when many railroad lines are ruined and others suffering, is just the time when new acquisitions and combinations may best be secured. Railroad property is cheap now, and a company may often secure a connection of some present and large prospective value for half its original cost. And though it might not have been policy for it to build the road, yet, being built, and sure to carry some traffic, it may well be for its interest to make sure that it is not used to injure its business—that whatever traffic the new road may control may go to it rather than to a rival. Thus the strong companies have unusual opportunities. Their weak rivals are unable to take advantage of the cheapness of their suffering connections, so that that strong ones have usually no one to bid against them. On the other hand, stockholders, frightened by the unfavorable results of so many of the leased connections and new branches acquired by their companies before the panic, are extremely averse to any new steps in this direction. Their caution is commendable, but they carry it too far when they conclude that because properties acquired at a high price have been unprofitable, others bought at an extremely low price must be so also. The bankrupt railroads exist and will be worked, and those who can work them to the best advantage are the natural successors to their original owners. They can make them useful when no one else can; and often by refusing to have anything to do with them they give place to rivals which will at once lessen the profits of the old roads and increase the charges to the community.

THE ATLANTIC & GREAT WESTERN.

The Atlantic & Great Western Railroad, being unable to pay the interest on its bonds, was put into the hands of a receiver Dec. 10, 1875. The company was working 605 miles of railroad, 420 of which it owned. The interest on its funded debt for the fiscal year just preceding was $2,726,000. As then shown the net earnings for the three years since the company had been reorganized had not been sufficient to meet this interest, the deficits varying from $660,000 to $3,300,000 per year, and amounting for 37 months to nearly $6,000,000, the amount of interest increasing yearly and the net income decreasing. The Receiver now makes his report for the year and 22 days of his administration down to the close of 1875, and shows for that time an income over expenses and such fixed charges, as rentals, etc., amounting to $184,000, not enough to pay one-half of one per cent. on the bonded debt. About $1,900,000 more is needed to pay the interest on the bonds secured by this railroad, aside from that on certain leased lines which the Atlantic & Great Western has guaranteed. As every road is compelled to make some expenditures for new construction yearly, and as in this case $125,000 of the $184,000 had to be devoted to this purpose, we may say that the Atlantic & Great Western last year barely paid its expenses, and earned nothing as income on the capital invested in it.

What, then, is the matter with the Atlantic & Great Western? Has it no traffic? An examination shows that for the period reported by the Receiver the traffic was equivalent to 84½ passengers and 715 tons of freight each way daily over its entire mileage. This is not a very heavy traffic, but there are many railroads in the country that thrive on less. The Illinois Central, which pays 8 per cent. dividends, has a quarter less passenger traffic and but half as much freight. Is it the great cost of working the road, necessary or unnecessary? The road has some considerable grades, has little steel in its tracks, very little double track, and, like other roads in financial straits, has not been able to make all the improvements necessary to do its work with the greatest economy. But reference to the report shows that under the Receiver the average cost has been: for carrying a ton of freight one mile, 0.83 cent; for carrying a passenger one mile, 1.58 cents. On the Erie Railway, a line with much heavier traffic, these expenses were last year 0.91 cent and 2.00 cents respectively; on the New York Central, with every appliance that capital can procure and an enormous traffic, they were 0.76 cent and 1.28 cents. We believe it is safe to say that no railroad in the country similarly situated and with a similar bulk of traffic does a given amount of work at less cost. The expense on freight during the last year was even reduced one-seventh below the extremely low cost in 1874. If, then, the road has a fair amount of traffic which it carries at unusually small cost, we are driven to look to the prices received for its work for an explanation of its meagre income.

We find in fact that the rates received on this road are extremely low, and, moreover, have declined yearly. The average freight rate was exceptionally low in 1872, but last year it was 37½ per cent. less. The passenger rate (which is less important, for this is smaller in amount and slower of growth), declined 9½ per cent. in the same time. Some comparisons will show more clearly the lowness of the average freight rate, the figures given being for the rates received per ton per mile by the various companies mentioned for the last year reported:

Atlantic & Great Western	1.015
Pennsylvania (Main Line and Branches)	1.068
Michigan Central (Main Line)	1.160
Erie	1.209
New York Central & Hudson River	1.275
Northern Central	1.433
Illinois Central	1.930
United New Jersey	2.006

The Lake Shore & Michigan Southern has reported the average receipt for 1875 as 0.997 cent per ton per mile; but all the above, it will be seen, even the Pennsylvania, show a larger average receipt than the Atlantic & Great Western. With rates no higher than the New York Central's, its surplus earnings would have been greater than they were by about $800,000—that is, would have been more than four times as great as they were.

We have here, then, a sufficient explanation of the failure to make an income on the capital invested in the road. The traffic has been well maintained, considering the times, and it has been carried at a very low cost; but the price received has been too small to leave a profit to the proprietors after paying for the rentals of leased roads and the large amount of rolling stock which this company is compelled to hire, for want of a sufficient supply of its own.

But there is one lesson to be learned from the result of the last and previous years' operations which the holders of its securities should not ignore. The road cannot be made to earn large profits. Under any circumstances it is likely to be forced to accept somewhat lower average rates than most of its immediate competitors; and though there is reason to hope that there may be some advance in these rates over those prevailing last year, it is idle to expect that they will be much higher, or attain the figures current in 1872. Now, at the rates of that year, the Atlantic & Great Western under the Receiver would have had a surplus of only about $2,100,000, which would barely cover the interest on the bonds secured by the road, excluding the leased line rental trusts and the Western Extension certificates. But the road will never get those rates again, unless the expenses of working increase considerably. It must accept a small margin of profit, and look mainly to an increase of business for additions to its unsatisfactory income. Prosperous times will naturally bring an increase of traffic, and this growth is more likely to be in the oil, coal and ore traffic, which may usually be made to return fair profits, than in the through produce traffic, which not infrequently, especially where the route is indirect, costs more than it brings in.

In order to trace the progress of traffic on the road, we have calculated the tonnage-mileage and passenger-mileage per mile of road worked for each of the past four years. When the period reported was not an even year, the mileage has been given as it would have been for twelve months at the rate reported for thirteen months or 387 days.

Traffic per Mile of Road for Four Years.

	Passenger mileage.	Tonnage mileage.
1872	69,495	412,842
1873	62,650	514,111
1874	65,260	527,645
1875	61,592	521,997

The passenger traffic shows a decrease, as on most roads since the panic: the amount per mile of road worked is 5½ per cent. less in 1875, than in 1874 though only 1.6 per cent. less than in 1873, which was the last year before the panic. The amount of freight traffic has been satisfactorily sustained. Though 1 per cent. less in 1875 than in 1874, it was 1½ per cent. more than in 1873, and 26 per cent. more than in 1872. Counting a passenger-mile equivalent to two ton-miles, the total traffic per mile of road worked in 1875 was 2 per cent. less than in 1874, 1 per cent. more than in 1873, and 16¾ per cent. more than in 1872. Considering that the company has not made any considerable expenditures for increasing the capacity of its road and rolling stock, the line may be said to have held its traffic well.

The following table enables us to trace the progress of the average receipts, expense and profit, in cents, per unit of each kind of traffic for the same period of four years:

	Per ton mile.			Per passenger mile.		
	Receipt.	Cost.	Profit.	Receipt.	Cost.	Profit.
1872	1.624	1.299	0.325	2.612	2.090	0.522
1873	1.329	1.044	0.285	2.628	2.065	0.563
1874	1.217	0.971	0.246	2.370	1.518	0.852
1875	1.015	0.831	0.184	2.367	1.580	0.787

The expenses were not divided between passenger and freight traffic for the first two years, and we have estimated the cost of each as the same percentage of the receipt, which is not accurate, but serves to indicate the degree to which profits have been affected by the reductions in rates and expenses.

The astounding fact is here developed that the receipt per ton per mile last year was less than the expense per ton per mile only two years before. That the company has had any net earnings is due to the large reduction in expenses. These were, in 1875, 36 per cent. less on freight and 25 per cent. less on passengers than in 1872.

Nevertheless, the reduction in the rates received has been so much greater, that the result of the operations has grown worse and worse. The profit per unit on freight in 1875 was 44 per cent. less than in 1872; and though there was (apparently) an increase in the passenger profit, this traffic is comparatively so small that it could not prevent a sensible diminution in the total profits. These (correcting a statement for 1873 in which a large amount expended for maintenance was charged to capital) have been:

1872	$1,618,199
1873	1,534,471
1874	1,162,291
1875	967,434

This, however, does not tell the whole story; for the company must pay rentals for leased railroads and rolling stock and other fixed charges before even the bondholders can receive their interest from these net earnings. These rentals have been largely reduced under the receivership; but even then they amounted to $734,000 for 387 days, which is at the rate of $692,600 per year. They were about $900,000 in 1872, about $1,400,000 in 1873, and $1,500,000 in 1874.

The holders of this company's securities, the great majority of whom live in Europe, have now before them a plan of reorganization which most of them, it is said, have agreed to. While maintaining a very large capital account, most of it is in stock and income bonds, so that there will be but a small amount of interest accruing yearly. So long as the road maintains its present 6-feet gauge its connection with the Erie is almost indispensable. The latter being in difficulty also, the reorganizations are likely to be made at about the same time, and may be made with a view to future close relations. The Atlantic & Great Western, however, can find an outlet over another road; and amid the difficulties attending the reorganization of the two companies, a third party may obtain control of this connection, which, though not very profitable in itself, still brings to the Erie a large amount of profitable traffic.

The Receiver's report, a summary of which is given, is remarkable for the fullness and clearness of the statements of his accounts and operations. This is not a report of the railroad company, it must be remembered, but of the receivership solely. The Receiver accounts for the property received by him and for what he has done with it. The obligations of the company to pay interest on its funded debt do not concern the Receiver, who has, however, had to pay certain rentals or else give up the property rented, and also has to pay certain floating liabilities of the company, when he has assets to meet them. The report is much the most elaborate that has been submitted by a receiver, so far as we know, in these days of receivers, containing not only the results, but the methods by which the results were obtained, and comparisons with the business before the receivership, thus affording material for a judgment on the value of the company's property and of the amount, progress and nature of its traffic. It is likely to be of great value to the security-holders in their action concerning a reorganization, and will afford them a basis for the foundation of reasonable expectations of the future of their property.

Good Work Which Does not Win Credit.

There are some kinds of good work for which credit is rarely given. The best and most faithful of physicians may exhaust the resources of his profession on a patient who dies after all: here the doctor, even if not blamed or distrusted, will not win the credit due to his efforts; though in a case requiring much skill he may, the patient surviving, gain much reputation and affection. In these days of sick railroad companies, skillful railroad managers are called in to exercise their art to heal the sufferers. Alas! some are mortally sick, and the skill of the whole faculty of railroad doctors can do no more than alleviate the patient's suffering and postpone the inevitable doom. And in this case, as in the other, the expert called in to heal, though acting with unsurpassable zeal, faithfulness and skill, is not likely to gain in reputation by what may be his very best work. The average railroad owner has less experience with these physicians of his property than with physicians of the family, and does not so readily recognize that some diseases are too much for the skill of the former. Indeed, he may easily be led to believe that the physician aggravated instead of alleviating the disease. The pulse by which he recognizes the disorder is the market price of his securities. When the trouble first comes, and dividends are passed or interest left unpaid, the fall in prices may not be very large because the managers hitherto had systematically concealed weakness. But the Receiver, or other manager brought in to remedy the disorder, if he is fit for his place, presents everything in its true light. The company which apparently had but a temporary embarrassment, may thus be shown to be fundamentally unsound, and to have been so for years. So down go stocks and bonds, and the unfortunate holder may think that the man called in to save him has only completed his ruin.

The position of some of the ablest railroad men in this country, now serving as receivers, has been made painful in this way. They may really have accomplished wonders in working economically and stimulating traffic; but reductions in rates, impossible to avoid, and diversions of traffic by new competitors or combinations, may neutralize all his efforts and waste away net earnings till they disappear entirely. Under these circumstances many of the security-holders for whose protection he is working are sure to suspect him of lack of ability or energy, and even of dishonesty. He has to tell them unwelcome truths, which they do not wish to believe. The ruin of their property becomes apparent under his administration, and they charge him with that ruin. His name to them—and they, perhaps, influential investors, who may control important railroad positions hereafter—becomes associated with misfortune, and sounds of ill omen. In future more prosperous times they will think of this man as the manager under whom the A railroad failed; of that one, as the receiver under whom the value of their bonds fell from $50,000 to $10,000. If the road managed has been brought to its troubles before the receiver's day by notorious dishonesty and incapacity, the ill fame due to the guilty is in some degree—often in a great degree—attached to their honest and able successors. They suffer for sins with which they have had no other connection than to make strenuous efforts to alleviate their effects. They get a bad name by trying to undo the bad work of bad men, or rather by becoming identified with that bad work while its evils are distinctly felt.

Under these circumstances, it requires not a little moral courage to administer firmly to the end a failing railroad. The manager has little besides his own sense of duty to sustain him. He will not receive the ordinary meed of honor, or reputation for doing good work; but is likely on the contrary to make enemies of the men whom he chiefly serves, to be suspected of dishonesty while strictly doing his duty, and to injure his reputation as a skillful executive while doing the best work of his life.

The Gilbert Elevated Railroad.

A contract has just been completed with the Edgemoor Iron Company for the construction of this road in New York City. Its route is through College place, West Broadway, South Fifth avenue, Amity street and Sixth avenue. The structure will consist of two rows of columns placed in the roadway and supporting two lines of longitudinal girders with cross girders at intervals united to the longitudinal girders and with longitudinal iron floor beams. The structure is to be adapted to support a double-track railroad capable of carrying a rolling load of 1,500 lbs. per foot on each track. The outside girders are to be so arranged that they will serve as parapets, or safety guards, the upper surface of the top chords, the platforms of the cars, and the station platforms to be as nearly on the same level as practicable.

The columns on Sixth avenue are to be about 37 ft. between centres longitudinally and 23 ft. apart from centre to centre transversely. The columns are to be composed of two channel bars 9×2½×5-16 in., and two plates 12×5-16 in.; four pieces of angle-iron bars and a plate to be fastened to the foot of the column.

The longitudinal girders are to be pin-connected trusses six feet deep, five feet six inches vertically from center to center of pin, with a stiffened lower chord. The upper chord will be composed of two channel bars 6 × 2 1-16 in., with a web three-eighths of an inch thick, and united by a plate 10½ in. wide by ½ in. thick. The bottom chord will be composed of two channel bars 6 in. × 2½ in. Each span of the longitudinal girder is to be divided into four panels. The panel posts will consist of two channel bars 6 in. × 2 1-16 in. × 5-16 in. web. The cross girders will be composed of plates 24 in. deep × 5-16 in. thick and 3 in. angle iron.

Where Amity street joins Sixth avenue there will be a curve of 90 ft. radius and the same where South Fifth avenue joins Amity street. The steepest grade will be 52 ft. per mile.

On Amity street the columns will be placed on the sidewalk, the width of the street being only about 28 feet. On South Fifth avenue the location of the posts has not yet been definitely determined. On West Broadway the columns will be on the sidewalk and also on College place.

The cross-ties are to be 19 ft. 6 in. long, so as to extend under both tracks, except in West Broadway. Their section is to be 6x7 in., and they will be spaced 18 in. from center to center. Longitudinal timbers are to be bolted and notched and let down upon the cross-ties on the *outside* of each line of rails. The size of the guard timbers is to be 7×8 in. The rails are to be of steel, weighing 56 lbs. per yard.

There will be two stations per mile at the intersection of cross streets; the platforms to be not less than 160 feet long adjacent to the track and level with the floor of the cars. The station buildings are to be framed of iron, supported on iron columns and sided and roofed with galvanized corrugated sheets.

It is expected that the road will be completed by the first of August, which will be an extraordinarily short time for the accomplishment of a work of this magnitude. The contract with so responsible a firm as the Edgemoor Iron Company of course removes whatever doubt has been entertained regarding the construction of this road.

Record of New Railroad Construction.

This number of the *Railroad Gazette* has information of the laying of track on new railroads as follows:

Rome, Watertown & Ogdensburg.—The *Lake Ontario Divi-*

sion is extended west 2 miles to Lewiston, N. Y., completing the road.

This makes a total of 304 miles of new railroad completed in the United States in 1876, against 129 miles reported for the same period in 1875.

A Break in Eastbound Rates, which, if long continued, would be severe calamity to the trunk railroads, and especially to the lines from Buffalo and Pittsburgh to Chicago and St. Louis, is threatened on account of inability to agree as to the terms to be allowed the Grand Trunk on through business. There has been a good deal of negotiation on the subject, but it has been fruitless so far, and last week a formal reduction was made in live stock rates from Chicago in consequence, and it is said rates on other freight are no longer fixed and that a contest may ensue in which they will probably be much reduced. We understand that the Grand Trunk demands the privilege of making rates lower than those of the other lines, and that its right to do so is accorded, while no agreement can be had as to the amount of the difference to be permitted. It will not take many days of a railroad war to cause the trunk lines to lose more than the Grand Trunk's profits on through traffic for a year, and this is a fact which the trunk lines might well bear in mind when negotiating. The Grand Trunk cannot do itself a great deal of good by its through business, but it can do its competitors a great deal of harm. It is entitled to have all it can make on that business, and it would be cheap for the short lines to pay it twice as much as it can make if thereby rates can be maintainted.

The Late Charles Danforth.

The Paterson *Press*, in a sketch of the life of the late Mr. Danforth, says:

Charles Danforth was born in Massachusetts in 1797, and next August would have seen his 79th birthday. From a boy he developed not only remarkable mechanical capacity, but strong self-reliance and a robust intelligence and rare common sense which attended him through life. While still a lad he took a trip to sea as a sailor before the mast. He served in the war of 1812, but in what capacity we have not been able to learn. He must have been, of course, at this time but fifteen or sixteen years old. He afterwards went to Matteawan, N. Y., opposite Newburgh, on the Hudson, where he worked as carder in a cotton factory. He then removed to Ramapo, N. Y., and also worked as carder in a cotton mill at Sloatsburg, N. Y. He then found employment at Hohokus, N. J., where he worked in the cotton mill now owned by John J. Zabriskie. Mr. Danforth started the first machinery used in that mill. While working there he invented the improvement in spinning frames known as the Danforth spindle, and which soon became celebrated throughout the world, among the improvements in cotton machinery. In the latter part of 1828 Mr. Danforth came to Paterson and entered the employ of Messrs. Godwin, Rogers & Clark, making an arrangement with that firm to manufacture his cap-spinning frame, which brought large orders to the concern and gave it a famous name. It was in this shop that Mr. Danforth had a working model of his invention made, which he took to England to exhibit and dispose of patent rights. In the fall of 1829, in company with Alexander Carrick, Mr. Danforth went to Europe to negotiate for the use of his invention, and met with great success. He returned in 1831. In his absence, the old firm of Godwin, Rogers & Co. had dissolved and Mr. Danforth took the place of Mr. Thomas Rogers, who retired, and connecting himself with Messrs. Ketchum & Grosvenor, established the long celebrated firm of Rogers, Ketchum & Grosvenor, which was succeeded by the Rogers Locomotive & Machine Company. The firm with which Mr. Danforth associated himself took the name of Godwin, Clark & Co., and continued under that title until 1840, when it dissolved, and Mr. Danforth bought out the whole interest in the machine shop, Gen. Godwin conducting the cotton mill, for two years, when Mr. Danforth bought out the whole concern, and conducted it alone until 1848, when he took into partnership Maj. John Edwards, who had served his time in the shop from 1826, and had been its foreman for several years. The firm name now became Charles Danforth & Co. In 1852 locomotive building was added to the business of the concern, and Mr. Edwin T. Prall—who had been principal bookkeeper from 1839, and Mr. John Cook, who had been Superintendent of the Rogers Works for six or eight years—were taken into the partnership, under the firm style of Danforth, Cooke & Co. Under this name hundreds of famous locomotives were built and sent to all parts of the country and to other lands, and the reputation of the concern firmly established. This firm name continued until 1865, when the establishment was incorporated as a joint stock company, under the title of the Danforth Locomotive & Machine Company, which it still retains. Mr. Danforth was President of the company until 1871, when—owing to his accumulating years and infirmities—he resigned, and was succeeded by Mr. John Cooke, who still retains the presidency.

General Railroad News.

ELECTIONS AND APPOINTMENTS.

Wabash & Kokomo.—At the annual meeting in Wabash, Ind., recently, the following directors were chosen: C. Cowgill, Alvah Taylor, J. N. Leach, Addison Armstrong, Milton Bell, James McCrea, J. S. Daugherty, S. Wilson, Daniel Weisner, John H. Ferree, James Ford. The board elected C. Cowgill, President; Alvah Taylor, Vice-President; H. Caldwell, Treasurer; F. M. Eagle, Secretary.

Northern Transit Co.—Mr. V. W. Halbert has been appointed General Passenger Agent, with office in Ogdensburg, N. Y. He has been for several years a conductor on the Vermont Central.

Alabama & Chattanooga.—General Superintendent Ball has issued the following circular:

"In consequence of a change in the method of transacting the business of this road, and the necessity for strict economy, the office of General Freight and Passenger Agent has been this day abolished, and its business transferred to the offices of the Auditor and Treasurer. Ticket reports should be sent to Mr. H. W. Crittenden, Auditor. All other communications relating to the freight or passenger departments should be addressed to Mr. R. A. Bacon, *Acting* Treasurer, who will act as General Freight and Passenger Agent."

Pittsburgh, Cincinnati & St. Louis.—At the annual meeting in Columbus, O., March 21, the following directors were chosen: Alfred Gaither, Cincinnati; D. S. Gray, Columbus, O.; G. W Adams, Dresden, O.; J. N. McCullough, Wm. Thaw, Pittsburgh J. N. Du Barry, Baltimore; H. H. Houston, Strickland Kneass Wistar Morris, Josiah Bacon, G. B. Roberts, Thomas A. Scott Philadelphia; Robert Sherrard, Jr., New York. The only new director is Mr. Du Barry, who succeeds Thomas L. Jewett, deceased. The board re-elected the old officers as follows: Thomas A. Scott, President; W. H. Barnes, Secretary; M. C. Spencer, Treasurer.

Maine Central.—At the annual meeting in Augusta, Me., March 22, the following directors were chosen: Abner Coburn, Darius Alden, John B. Brown, Nathan Sewall, Noah Woods, Wm. G. Davis, Frank Jones, Samuel C. Lawrence, James W. Johnson, George L. Ward, James P. Cooke. The new directors are John B. Brown and S. C. Lawrence, who replace Frank W. Hill, N. M. Whitmore, John Cummings and John Wooldredge, there being two less directors this year.

Portland & Ogdensburg.—The Maine Company has chosen the following directors as its representatives on the board of the consolidated Portland & Ogdensburg Line: S. J. Anderson, H. N. Jose, J. E. Donnell, W. L. Putnam, D. W. Clark, W. F. Milliken, all of Portland.

Sharpsville.—This company has been organized by electing Walter Pierce, of Sharpsville, Pa., President, with the following directors: John Phillips, J. J. Pierce, Sharpsville, Pa.; Joseph Forker, Samuel Kimberly, B. H. Henderson, Sharon, Pa.; W. L. Scott, Erie, Pa.

Pacific, of Missouri.—At the annual meeting in St. Louis, March 27, the following directors (one-third of the board) were chosen: George E. Leighton, W. E. Burr, St. Louis; Joseph L. Stephens, Boonville, Mo.; E. F. Leonard, of Illinois. These are all new directors, replacing Samuel Hays, D. R. Garrison, M. J. Lippman and M. H. Coffin. Previous to the meeting the board of directors elected Charles P. Chouteau and D. R. Garrison directors in place of Andrew Pierce, Jr., and Oliver A. Hart, resigned.

Searcy, Pine Bluff & Monroe.—Dr. J. M. Holcombe, of Pine Bluff, Ark., is President of this company.

TRAFFIC AND EARNINGS.

Railroad Earnings.

Earnings for various periods have been reported as follows:

Year ending Oct. 31:	1874-75.	1873-74.	Inc. or Dec.	P. c.
St. Joseph & Denver City.	$425,457	$402,544	Inc .. $22,913	5.7
Expenses	440,301	373,945	Inc .. 66,356	17.7
Deficit, or net	$14,844	$28,599		
Earnings per mile	1,682	1,781	Inc .. $102	5.7
Per cent. of expenses	103.49	92.89	Inc .. 10.60	11.4

Hassler's *Circular*, which gives these earnings, says: "The expenses include, we understand, payments made on account of certificates to employes issued in 1872 and 1873, amounting in the aggregate to a large sum."

Other earnings are as follows:

Year ending Sept. 30:	1874-75.	1873-74.	Inc. or Dec.	P. c
Boston, Clinton & Fitchburg	$1,119,518	$1,096,003	Inc .. $23,515	2.1
Expenses	718,315	727,376	Dec.. 9,061	1.2
Net earnings	$401,203	$368,627	Inc .. $32,576	8.8
Earnings per mile	7,590	7,431	Inc .. 159	2.1
Per cent. of expenses	64.16	66.37	Dec.. 2.21	3.3
Year ending Dec. 31:	1875.	1874.		
Maine Central	$1,786,076	$2,094,080	Dec..$308,004	14.7
Expenses	1,147,066	1,281,681	Dec.. 134,615	10.5
Net earnings	$639,010	$812,399	Dec..$173,389	21.3
Earnings per mile	5,031	5,899	Dec.. 868	14.7
Per cent. of expenses	64.22	61.20	Inc.. 3.02	4.9

Two months ending Feb. 29:	1876.	1875.		
Atchison, Topeka & Santa Fe	$250,416	$147,068	Inc ..$103,348	70.3
Cleveland, Mt. Vernon & Delaware	54,983	51,261	Inc .. 3,722	7.3
Nashville, Chattanooga & St. Louis	335,208	289,092	Inc .. 46,116	16.0
Expenses	195 998	211,621	Dec. 15,623	7.4
Net earnings	$139,210	$77,471	Inc .. $61,739	79.7
Per cent. of expenses	58.47	73.20	Dec.. 14.73	20.1
Paducah & Memphis	42,833	30,183	Inc 12,650	41.9
Philadelphia & Erie	458,109	.....	.....	....
Expenses	340,185	.....	.....	....
Net earnings	$117,924	$81,043	Inc .. $36,881	45.5
Per cent. of expenses	74.26	.....	.....	....
St. Louis & Southeastern.	164,490	164,623	Dec.. 133	0.1
St. Paul & Sioux City	83,220	42,424	Inc .. 40,796	96 0
Sioux City & St. Paul	59,039	19,519	Inc .. 39,520	171.6

Month of January:				
Denver & Rio Grande	$33,679	$20,364	Inc .. $13,315	65.4
Expenses	15,418	13,959	Inc .. 1,459	10.4
Net earnings	$18,261	$6,405	Inc .. $11,856	185.1
Per cent. of expenses	45.78	68.43	Dec.. 22.65	33.1

Month of February:				
Atchison, Topeka & Santa Fe	$133,000	$78,409	Inc .. $54,591	69.4
Cleveland, Mt. Vernon & Delaware	$27,236	$25,738	Inc .. $1,498	5.8
Nashville, Chattanooga & St. Louis	161,823	139,912	Inc .. 21,911	15.6
Expenses	95,913	95,667	Inc .. 246	....
Net earnings	$65,910	$44,245	Inc .. $21,665	49 0
Per cent. of expenses	59.28	68.33	Dec.. 9.05	13.2
Paducah & Memphis	21,331	14,941	Inc .. 6,390	42.8
Philadelphia & Erie	226,916	.....	.....	.....
Expenses	189,344	.....	.....	.....
Net earnings	$37,572	.....	.....	.....
Per cent. of expenses	83.45	.....	.....	.....
St. Louis & Southeastern	83,648	$80,087	Inc .. $3,561	4.4
St. Louis, Kansas City & Northern	292,879	196,155	Inc .. 96,724	44.2
Expenses	160,319	.....	.....	.....
Net earnings	$132,560	.....	.....	.....
Per cent. of expenses	53.14	.....	.....	.....
St. Paul & Sioux City	41,749	$19,298	Inc .. $22,451	116.0
Expenses	25,014	.....	.....	.....
Net earnings	$16,735	.....	.....	.....
Per cent. of expenses	60.00	.....	.....	.....
Sioux City & St. Paul	25,323	$8,765	Inc .. $16,558	189.0
Expenses	19,502	.....	.....	.....
Net earnings	$5,821	.....	.....	.....
Per cent. of expenses	77.00	.....	.....	.....

Second Week in March:				
Canada Southern	$44,212	$27,382	Inc .. $16,830	61.4
Denver & Rio Grande	6,937	6,357	Inc .. 580	9.0
Third Week in March:				
Chicago, Milwaukee & St. Paul	$105,000	$103,200	Inc $1,800	1.7
Michigan Central	117,201	118,310	Dec.. 1,109	0.9
Missouri, Kansas & Texas.	$50,568	$50,642	Dec.. 74	....
St. Louis, Kan. City & No.	64,745	59,696	Inc .. 5,049	8.5
Two weeks ending March 10:				
Great Western	£32,363	£37,758	Inc .. £395	1.3
Two weeks ending March 11:				
Grand Trunk	£76,200	£68,400	Inc .. £9,800	12.5

Ice Traffic.

The mild winter has brought to many railroads this spring an unusual amount of traffic in the hauling of ice. Many of the cities and large towns in Southern New England, in New York, Pennsylvania, Ohio and as far west as Iowa have failed to secure a supply of ice from the usual local sources, and are obliged to draw it from the more northern sections where it can be found. On nearly all the New England and New York roads this traffic is just now exceptionally large; the north and south lines in Michigan and Ohio, as well as those of Illinois and Iowa, are deriving a very considerable business from this source.

Coal Movement.

Coal tonnages for the week ending March 18 are reported as follows:

	1876.	1875.	Inc. or Dec.	P. c.
Anthracite	59,189	173,547	Dec..114,358	65.9
Semi-bituminous, Broad Top and Clearfield	27,872	26,407	Inc .. 1,465	5.5
Cumberland	29,971	28,990	Dec.. 1,019	3.5
Bituminous, Barclay	6.313	.....	.....	....
Bituminous, Western Pa.	22,910	12,383	Inc .. 10,527	84 9
Coke, Western Pa	13.362	.....	.....	....

The resumption of work in the anthracite regions began March 27, but will hardly be general for another week.

Live Stock Rates.

Live stock rates from Chicago eastward were reduced last week to a level with regular fourth-class freight rates, owing to difficulty with the Grand Trunk. The old rates went into effect last January. The following are the new and old rates in cents per 100 pounds:

Chicago to—	New rates.	Old rates.
New York	45	60
Baltimore	39	52
Philadelphia	40½	54
Buffalo, Suspension Bridge or Pittsburgh	25	32
Albany	38	50
Dunkirk	22½	30
Toledo	16	20

The reduction is about 25 per cent.

Freight Rates.

The New York Central and Erie made on March 28 a reduction of 2½ cents per 100 pounds on grain and 5 cents per barrel on flour from all Canadian points to New York and Boston. The reduction is made to meet those recently made by the Grand Trunk.

PERSONAL.

—Mr. Aaron Arnold, a well-known New York merchant, who died in that city March 18, was one of the principal owners of the Peoria, Pekin & Jacksonville road. When the old Illinois River road was sold under foreclosure in 1863, he, in connection with John Allen and Edwin L. Trowbridge, bought it in and organized the present company, in which they retained a controlling interest.

—Mr. Chauncey Kelsey, Auditor of the Indianapolis, Bloomington & Western road, was married March 28 to Miss Kate Smith, daughter of C. W. Smith, formerly General Manager of the road.

—Ex-Gov. James Y. Smith, a leading manufacturer of Providence, R. I., and a director of the New York & New England Company, died March 26.

—Mr. John S. Eldridge, who died at his residence in New York, March 23, was at one time Manager of the Sullivan Railroad and later for several years President of the Boston, Hartford & Erie.

—Mr. M. B. Goodrich, General Freight Agent of the Cairo & Vincennes Railroad, died in Cairo, Ill., March 22, of pneumonia. He was originally from New York and was formerly connected with the St. Louis & Southeastern.

—Mr. J. J. Frey has resigned his position as Superintendent of the Sedalia & Hannibal Division of the Missouri, Kansas & Texas. He had been six years on the road, going to it at first as train dispatcher.

—Mr. Lewis Carvell, late Superintendent of the Intercolonial Railway, is now engaged in forming a company in New Brunswick and other provices for the purpose of carrying on an extensive silver mining and crushing enterprise. The style of the company is the Canadian Silver Ore Crushing Company.

—George Francis Train was examined last week as to the property which his creditors could reach. In the course of it he said that he had no income of his own; that 15 years ago he settled $100,000 on his wife, the amount being commissions paid him for negotiating the original bonds of the Atlantic & Great Western Railway Company; he had assets consisting of claims on corporations, $5,000,000 of them in claims for royalty at $2,500 per mile on 2,000 miles of horse railroad in English cities, a claim against James McHenry for negotiating Atlantic & Great Western bonds, and other "claims" amounting to $20,000,000.

—Mr. Joseph M. Wilson, of the firm of Wilson Brothers & Co., of Philadelphia, and Engineer of Bridges and Buildings of the Pennsylvania Railroad, has recently been elected to membership in the Institution of Civil Engineers, London, England.

THE SCRAP HEAP.

Railroad Manufactures.

The Taunton Locomotive Works, at Taunton, Mass., recently shipped two freight engines, with 16x24 cylinders, to the St. Paul & Sioux City road, and a small tank engine to the Hartford, Providence & Fishkill.

The Jackson & Sharp Company at Wilmington, Del., is building 36 narrow-gauge passenger cars to be used over the railroad within the Centennial grounds at Philadelphia.

The Eureka Furnace, at Oxmoor, Ala., went into blast March 11, using red Alabama ore and Alabama coke.

The new mill of the Pottstown (Pa.) Iron Company will be ready for work April 1.

The Glasgow Iron Company at Glasgow, Pa., rolled its first iron March 9. The plate mill was put in full operation March 15.

The rolling mill of Seyfert, McManus & Co., at Reading, Pa., started up March 13.

Porter, Bell & Co., of Pittsburgh, have just shipped a 15-ton narrow-gauge passenger engine to the Centennial. It has no unusual ornament, being intended as a specimen of their usual working engine.

The National Locomotive Works of W. H. Bailey & Co., at Connellsville, Pa., have recently shipped engines to Pinconning, Mich., for a lumber road there; to Mississippi, to Tennessee and to the Wyandotte, Kansas City and Northwestern road.

Coe, Ely & Harmon, of Cleveland, O., have an order for 1,000 car axles for a Southern road.

The Ohio Falls Car Works at Jeffersonville, Ind., will probably be sold under foreclosure by the trustees under the mortgage. It was stated, at a recent meeting of the creditors, that a company would be formed to buy in the works and continue to run them. The creditors generally are willing to give sufficient time for the reorganization.

The Alliance (O.) Rolling Mill will start up shortly on rails for the Lake Erie, Alliance & Wheeling road.

The Wason Company at Springfield, Mass., is building five cars for the new through line from Boston to Philadelphia.

Twelve passenger cars for the New York, New Haven & Hartford road are nearly ready for delivery.

The Baldwin Locomotive Works recently shipped 12 engines to Rio Janeiro and are now shipping several more to Santos, Brazil.

The Watson Manufacturing Company at Paterson has lately received contracts for a $12,000 bridge on the Harlem road, another on the Dutchess & Columbia, and a lot of architectural work for a building in Washington.

A Big Passenger Train.

Tuesday, March 21, the Chicago & Northwestern passenger train running from Omaha consisted of thirty cars, hauled by three engines. The California trains over the Union Pacific had been blocked for five days and all the delayed trains arriving at nearly the same time at Omaha gave the unusual train loads for the East.

Burning Coal Dust.

The Reading *Eagle* says of the experiments made by Superintendent Wootten, of the Philadelphia & Reading, with coal dust as a fuel: "Mr. Wootten takes the bare coal dirt, throws it in the locomotive or stationary engine furnace, and it burns the same as any other coal. The furnace has no bars, but a perforated plate through which a blast is introduced when required. The various tests made have acted very satisfactorily.

"At a stationary engine furnace at the lower shops in this city, there is an automatic attachment which puts on the blast itself, when required, and shuts it off also when necessary, as the register on the steam gauge requires."

New Process for Rolling Steel-Headed Rails.

The Detroit *Post* thus describes a new process by which rails with steel head and iron base are now being made at the Wyandotte Rolling Mill: "The pile is made up as for the ordinary iron rail. For the head, scraps of steel, hitherto not utilized at all, are spread of the desired thickness, and upon this is laid a plate of steel. The flux, in the shape of a hard substance about the size of a kernel of corn, is scattered through and over the pile, which is then placed in the oven. When properly heated it is drawn and rolled in the ordinary manner. It is found to be a perfectly homogeneous mass; the fibrous iron and the crystaline steel have their particles so interwoven that it is a physical impossibility to separate one from the other. Breaking or twisting does not produce a separation at the point of juncture. The wonderful work of uniting iron and steel, so mechanically different, into one homogeneous mass, is accomplished by the peculiar flux composed of 55 parts iron, 20 parts silicon and 25 parts aluminum. The chemical action of these substances is explained to be as follows: The silicon takes up all the alkaline matter, while the aluminum eliminates the free oxygen, phosphorus and sulphur, thus making a uniform, consistent, close-grained metal."

A New Kind of Signal Man.

The Portland (Me.) *Press* has the following story, which readers are at liberty to believe—or not—as they choose: "Yesterday, as the morning train over the Rochester road was nearing Alfred, the engineer discovered a large Newfoundland dog on the track. He blew the whistle, but the dog stood his ground, and thinking something was wrong the engineer whistled down brakes, and the engine stopped within a few feet of the dog. It seems that a four-ox load of logs had attempted to cross the track, but the sled caught on the rails. The driver heard the train approaching round a curve, and rushed down the track to stop it. His dog took in the situation, and dashing around the curve stopped the train. It would have been impossible to stop the train after seeing the man."

Locomotive Construction.

Mr. F. W. Webb, of the London & Northwestern Railway, in a discussion, some time ago, before the Institute of Civil Engineers on a paper on Modern Locomotives, said that "with regard to heating the feed water, during the time he was with Mr. Ramsbottom on the London & Northwestern line every feasible means was tried in the 'Sharp' class of engine, but no economy worth the complications was obtained. If a portion of the exhaust steam for heating the feed-water were discharged, the blast-pipe had to be contracted to get the necessary amount of steam to work the engine.

"Air holes in the fire-box had been abandoned, as they caused much increase in the wear and tear of the fire-box plates.

"As to the material of the boilers, he was now using steel entirely, and there were at work two hundred of the kind shown in the International Exhibition that year, but with copper boxes. He had picked up that morning in the workshop some pieces which would show the kind of test applied to the steel plates. The tensile strength of the piece he exhibited was from 32 to 34 tons per square inch, and it would stretch 25 per cent. before breaking. The percentage of carbon contained in it varied from 0.2 to 0.22 or 0.23. He had been making experiments as to the best material for fire-boxes. Having heard a good deal about the Pittsburgh steel, he went when in America to Pittsburgh, and certainly saw there results which he had not witnessed in this country; but now he was able to obtain them. The fire-box plate of the engine in the Exhibition was brought out of the rollers and thrown into a tank of cold water, the tank being 16 feet long and 6 feet deep; the plate was then put into the annealing furnace, and returned again to the water, and the process was repeated four times. A piece of that steel would bend double without annealing after the last dipping. He believed it had a great deal to do with the ultimate ductility of the steel; and it was proved that the steel was thoroughly reliable for fire-boxes, since it would stand that sudden alteration of temperature."

A Cause of Railroad Accidents.

Colonel Yolland, in reporting on a collision near Stafford, on the London & Northwestern Railway, on the 15th of December, 1875, says: "I have examined the reports of the collisions which have occurred during the present year, and find that, under very similar regulations and similar practice with respect to the passing of distant signals at 'danger,' no less than thirty, out of a total of ninety-nine collisions, may be said to have resulted from the permission to run past the distant signal while standing at 'danger,' instead of absolutely stopping at it, and then drawing within it, and that these thirty collisions involved the death of no less than ten passengers and two railway servants, and injuries to 295 passengers and 21 railway servants. Six of these collisions occurred on the London & Northwestern Railway, under the regulations which I have recited."

A Keely Motor Thirty Years Ago.

A correspondent sends us the following extract from a Philadelphia paper in October, 1845:

"A letter from this city [Philadelphia] published in the *Memorial de Rouen* has the following startling news to Philadelphians:

"William Evans has resolved a problem, which must overturn our present system of railway and steamboat propulsion. By means of enormous compression, he has succeeded in liquifying atmospheric air; and then, a few drops only of a chemical composition poured into it, suffice to make it resume its original volume with an elastic force quite prodigious. An experiment, on a large scale, has just been made. A train of twenty loaded wagons was transmitted a distance of sixty miles, in less than an hour and a quarter (!), the whole motive power being the liquid air enclosed in a vessel of two gallons and a half measure; into which fell, drop by drop and minute by minute, the chemical composition in question. Already subscriptions are abundant, and a society is in process of formation. The inventor declares that an ordinary packet boat may make a passage from Philadelphia to Havre in eight days, carrying a ton of his liquid air. A steam engine of six horse power will produce that quantity in eight hours."

The editor says: "This is what newspapers call 'important if true.'"

He Does Not Want to Deadhead Again.

The Truckee (Cal.) *Republican* says: "One man will never deadhead any more on trains running down the Truckee canon. Just as the midnight train pulled out from Truckee he jumped on to the pilot of the engine. No one saw him. It was one of the engines that have a space between the boiler-head and the top of the pilot, and he snuggled down so close in this space that the fireman passed him unnoticed while oiling the engine. The place was warm and cosy, owing to the heat from the boiler, and as the train swept around the curves of the river the man kept on chuckling quietly at the cute manner in which he was swindling Leland, Stanford & Co. Boca, Camp 18 and Bronco were passed, and the deadhead was grinning from ear to ear at thoughts of his wonderful luck. Suddenly there was a crash! bang! thud! that transformed the grin to a ghastly stare; but this part of the story is best told from the engine. 'Sam, ain't we running pretty fast?' said the engineer to the fireman. 'Yes,' said Sam, 'I don't like to go round these short curves quite so darned —.' Just here the conversation was interrupted by the aforesaid thud. The engine had struck something with great violence, and whatever it was had been thrown against the boiler and headlight, and the light was out. The engineer and fireman exchanged looks of astonishment. Each had caught a glimpse of something—a shape on the track just as the engine shot around the point. Not a word was exchanged. Sam grasped the flaring torch which firemen carry and ran to the front of the boiler. For an instant Sam leaned over and held the torch out above the pilot, and then slowly turned and walked back into the cab. 'My God!' he gasped, 'we have killed a man.' Is he mangled much?' eagerly inquired the engineer. 'I couldn't tell,' said Sam, 'he was all covered with blood.' There was unbroken silence in that cab until the train reached Verdi and stopped. Slowly, mechanically each man took a light and went forward to examine the dead. Imagine their astonishment when they went forward and found blood and pieces of flesh, and all that, and no man. Sam insisted that he was lying down close to the boiler, and could not possibly have rolled off the pilot, and everywhere. All night long they wondered and queried and puzzled over the sad mystery, and it was not until the next day that they learned the truth. The engine had struck a cow and literally mashed her to pieces. Our unknown friend was so scared, so drenched with blood and covered with the material composing the cow that he was quite disgusted with deadheading. He lay perfectly still until the train stopped, then he crawled out from his nestling-place unscathed, and really enjoyed the cool night-walk to Reno. Sam Redmond has never to this day recovered from the fright he received when he saw that blood-drenched deadhead lying stretched out on the pilot."

OLD AND NEW ROADS.

Atlantic & Great Western.

From a statement published in London it appears that up to March 7 there had been deposited with the trustees under the reorganization agreement, $6,349,884 first, $3,412,662 second, and $6,714,042 third-mortgage bonds, being $16,476,588 in all. The trustees expected soon to have a majority of the bonds in their hands.

Mattoon & Woodbury.

A company has been organized at Mattoon, Ill., to build a railroad from that place southward to the Vandalia Line, near Woodbury, about 24 miles. It will take the line surveyed and partly graded by the Mattoon & Grayville Company.

Keokuk, Galesburg & Chicago.

The preliminary survey has been completed from Galesburg, Ill., to Keokuk, Ia., 70 miles. The route is through Berwick, Roseville, Briton, Durham Center, Rock Creek and Montebello, being pretty direct. A good line has been found with no heavy work and but little bridging. Much of the right of way has been promised.

Chicago, Rock Island & Pacific.

The contractors on the extension of the Oskloosa Branch, west to Knoxville, have about 300 men at work between Oskaloosa and the Des Moines River, and have been instructed to work as fast as possible.

Gulf, Colorado & Santa Fe.

In Galveston, Tex., March 18, the Texas Supreme Court affirmed the decision of the lower court refusing to grant an injunction to prevent the issue of the bonds voted by Galveston County to this road. The decision sustains the constitutionality of the law, and holds the action of the County Court legal in every respect.

The Galveston *News* says: "The company is now in a condition to resume construction, which will doubtless commence at once, and be pushed forward as rapidly as means and energy can furnish the requisites of a first-class railroad.

"The section between the city and the bridge, which was damaged by the September storm, will, it is understood, be put in order immediately, proposals having already been presented for the accomplishment of that part of the work. There is a sufficiency of iron to lay the track six miles beyond the bridge, together with a large number of ties and other material.

"The road bed is graded for 32 miles, and partly graded for some eight or ten miles further, and ample means are in the hands of the officers of the company to purchase the iron that will be required for it as it is extended westward. * *

"The opinion, which was rendered by Justice Moore, is elaborate and at the same time pointed. Every possible point is covered, and the law applicable to the issue so clearly and explicitly defined and explained as to put the issue decided forever at rest."

Camden & Atlantic.

This road is being put in excellent order for the summer travel, and the usual spring repairs are nearly completed. The company is having a number of new excursion cars built at Wilmington, Del.

Searcy, Pine Bluff & Monroe.

A movement is on foot to build a line from Searcy, Ark., to Riley's Landing or West Point, on White River, which may hereafter be used as part of this road, or as a branch of it.

Atlantic & Pacific.

In the suit against this company in the United States Circuit Court at St. Louis, the Court has made an order allowing the American Bridge Company, the Cleveland Rolling Mill Company and the Union Rolling Mill Company to bring suits in order to preserve and perfect their liens against the company's road and its leased lines for work and materials furnished.

St. Louis County has filed an intervening petition asking that the Court order the receivers to set aside a sufficient amount from the net earnings of the road to pay the interest on the $700,000 county bonds issued in aid of the Pacific road, according to the contract between the county and the Pacific company, which was duly assumed by the lessees.

An adjourned meeting of the county courts of the counties along the line of the Atlantic & Pacific main line was held in Springfield, Mo., March 21, the object being to secure co-operation in the suits now being prosecuted to collect back taxes due from the road.

Helena & Iron Mountain.

It is announced that this company has finally succeeded in negotiating bonds enough to pay for the iron contracted for with the Marietta Iron Company. It is said that the rails will be delivered in a few weeks and laid as fast as received.

Delaware, Lackawanna & Western—Morris & Essex Division.

Several new trains have been put on the road recently with the Miller platform and coupler, which will probably be fitted to all the passenger equipment.

The break in the new tunnel through Bergen Hill has somewhat increased in size and will delay the completion of the tunnel a little, besides requiring some arching in addition to that originally calculated on. A new shaft is being walled up at the centre of the break. The work of enlarging the headings to full size is progressing and has not been interfered with, except in the vicinity of the slide.

St. Paul & Sioux City.

The operations for the month of February are reported as follows:

Earnings from freight		$31,843 69
Passengers		8,103 89
Other sources		1,801 48
Total ($342 per mile)		$41,749 06
Expenses (60 per cent.)		25,013 73
Net earnings ($137 per mile)		$16,735 33
Rents		81 00
Total		$16,816 33
Taxes	$894 98	
Insurance	375 00	
Interest	2,105 20	
		3,315 18
Surplus for the month		$13,501 15
Balance from January		11,157 74
Carried forward to next month		$24,658 89

As compared with February, 1875, the gross earnings show an increase of $22,450.66, or 116 per cent.

St. Louis, Keokuk & Northwestern.

Work on the Louisiana Extension has been delayed by a heavy land-slide near Hannibal, Mo., which has temporarily stopped tracklaying. The bridge over Salt River, the largest on the line, is completed.

Cumberland & Pennsylvania.

The bill reducing the rates allowed to be charged on coal over this road one per cent. per ton per mile has finally passed the Maryland Legislature and has been signed by the Governor. It is said that the Consolidation Coal Company, which owns the road, will contest the law on the claim that it is unconstitutional.

Central of Iowa.

The United States Circuit Court has refused the petition to dismiss the appeal taken to the Supreme Court by Messrs. Sage and Cowdrey.

Kansas Central.

The officers of this company are at work along the line of the proposed extension from Holton, Kan., westward, trying to secure subscriptions and local aid.

Rockford, Rock Island & St. Louis.

A telegram from H. Osterberg, received last week in Davenport, Ia., stated that a meeting of the owners of the road had been held, at which he made a report of all his operations as agent in purchasing and operating the road, and all his acts were approved. At the same meeting the bondholders resolved to authorize Mr. Osterberg to build the Rockford road to Rockford, and voted money sufficient to accomplish that purpose.

Dunleith & Dubuque Bridge.

Twenty bonds of this company having been drawn for redemption, notice is given that they will be paid, at $1,050 each, at the office of the Illinois Central Railroad Company in New York on or after May 1. Interest will cease from that date. The numbers drawn are: 9, 13, 104, 143, 169, 170, 171, 182, 226, 269, 293, 305, 323, 350, 362, 371, 379, 454, 460, 483.

Cincinnati & Terre Haute.

It is said that arrangements are being made by parties in Terre Haute, Ind., to buy this road when it is sold under the foreclosure proceedings now pending. The intention is to complete it as far as the crossing of the Ohio & Mississippi road.

Sioux City & St. Paul.

This company reports operations for February as follows:

Freight earnings		$20,041 29
Passenger		3,212 83
Express, mail and miscellaneous		2,069 32
Total earnings ($171 per mile)		$25,323 44
Working expenses (77 per cent.)		19,501 69
Net earnings ($39 per mile)		$5,821 75
Rents		76 00
Equipment bond sinking fund		1,031 34
Total		$6,929 09
Elevator rents	$268 33	
Illinois Central track rental	1,575 00	
Special equipment trust	2,248 00	
State taxes	1,227 91	
Insurance	200 00	
		5,519 24
Surplus for month		$1,409 85
Balance for January		2,766 75
Carried forward to March		$4,176 60

As compared with February, 1875, there is an increase in gross earnings of $16,558.69, or 189 per cent.

Ohio & Mississippi.

The people of Quincy and other towns interested are trying to induce this company to extend its Springfield Division from Beardstown, Ill., west to Quincy, about 50 miles, most of it parallel and near to the Toledo, Wabash & Western.

Louisville, Cincinnati & Lexington.

In 1872 this company made an agreement to purchase the Shelby Railroad, the conditions being that the purchaser should assume the bonded debt ($88,500) and issue $456,144 of its own stock to be divided *pro rata* among the stockholders of the Shelby Company. Subsequently some of the stockholders brought suit to set aside the sale, but were defeated in the lower courts. The Kentucky Court of Appeals, however, has just reversed the decision and holds the contract null and void, on the ground that it was never properly ratified by the stockholders of the Shelby Railroad Company, no legal notice having

been given of the meeting called for that purpose. The cause is remanded to the lower court with directions to set aside the alleged sale and for further proceedings consistent with the decree. The completed part of the Shelby Railroad forms the Shelbyville Branch, from Anchorage to Shelbyville, 19 miles.

The Kentucky Court of Appeals has overruled the application of the trustees for a new trial in the matter of the suits brought by a number of employes to recover back pay due them. The amount involved is about $134,000, which will now have to be paid.

New York & New England.

The opening of the new through line between Boston and Philadelphia over this road, the New York, New Haven & Hartford and the Pennsylvania has been postponed to April 17. The reason of the postponement is understood to be the unavoidable delay in procuring authority to run the transfer ferry between Mott Haven and Jersey City.

Peterborough.

At a special meeting held in Nashua, N. H., March 27, the stockholders of this company voted to authorize an issue of $175,000 fifteen year 6 per cent. bonds for the purpose of funding the floating debt. The road is leased to the Boston & Lowell and Nashua & Lowell companies, is 11 miles long, and has, we believe, no funded debt.

Jackson, Tennessee River & Birmingham.

A contracting firm has made an offer to build and equip this projected road from Jackson, Tenn., west by south to the Tennessee River, about 40 miles, at a cost not to exceed $10,000 per mile, the contractors to take $100,000 in securities of the company. Grounds for depot and shop purposes in Jackson have been given to the company.

Nashville, Chattanooga & St. Louis.

The following statement is published for the eight months ending Feb. 29:

	1875-76.	1874-75.	Inc. or Dec.	P.c.
Earnings from passengers ...	$342,161 46	$354,463 17	Dec.. $12,301 71	3.5
Freight	826,140 82	816,435 45	Inc.. 9,605 37	1.2
Other sources..	41,969 03	41,980 93	Dec.. 11.90	..
Total earnings	$1,210,171 31	$1,212,879 55	Dec.. $2,708 24	0.2
Working exp'n.	691,540 60	832,473 53	Dec.. 140,932 93	16.9
Net earnings....	$518,630 71	$380,406 02	Inc.. $138,224 69	36.3
Int. accrued on bonds	292,080 00			
Surplus	$226,550 71			

The earnings this year were $3,539 per mile; the expenses 57.14 per cent. of gross earnings, against 68.63 per cent. last year.

St. Louis & Southeast'ern.

Mr. John P. Hains, Auditor, reports for the month of February as follows: St. Louis Division, $43,616.34; Kentucky Division, $27,317.85; Tennessee Division, $12,713.57; total, $83,647.76; total, 1875, $80,087.42; increase, $3,560,34, or 4.4 per cent.

Louisville, New Albany & St. Louis.

Under a decree of foreclosure made by the United States Circuit Court this road will be sold at public sale in New Albany, Ind., May 18, the sale including all the road in the State of Indiana. The terms of sale are cash, provided that if the property is bought in by any of the bondholders, their bonds and unpaid coupons will be accepted *pro rata* in payment. The sale includes 10 miles of completed road, from Princeton, Ind., west to the Wabash River, and a large amount of unfinished road, grading, etc., some of it being very costly work.

Cairo & Vincennes.

Notice is given that under an order of the United States Circuit Court made in execution of a chattel mortgage executed Feb. 1, 1875, by the receivers of this road, the mortgagees, Messrs. Drexel, Morgan & Co., will sell at auction on the line of the road, April 28, the equipment, consisting of 10 engines, 8 passenger, 2 baggage and mail and 2 express cars; 80 box, 20 stock, 60 flat and coal and 4 caboose cars. The sale will take place at the various stations along the road, a special train leaving Cairo, Ill., at 8 a. m. on the day of sale.

New Jersey Midland.

The storm of March 25 inflicted serious damage on this road. At the crossing of Saddle River, near Rochelle Park, N. J., about 150 feet of the road-bed was washed away, making it necessary to build a temporary trestle. The road was also badly washed near New Dunham and above Pompton, the whole damage done being estimated at $20,000.

The Late Storm.

The very heavy storm of last week extended over an unusual area of country and did great damage to railroads. In the Northwest it took generally the form of snow, as it did in Northern New England, and almost everywhere we have reports of serious delay and some accidents from that source. In Southern New England, New York, New Jersey, Pennsylvania and Ohio, there were heavy rains and many delays and accidents from land-slides, wash-outs and kindred troubles. The greatest force of the storm appears to have been felt in New England, hardly a railroad in Massachusetts and Connecticut escaping serious loss. The streams were swollen to an unusual extent, and many bridges were carried away. Individual cases of loss and damage are almost too numerous to be reported in detail.

Chenango Canal.

A bill has been introduced in the New York Legislature providing for the transfer by the State of this canal to a company to be organized under the name of the Chenango Canal Railroad Company. The new company is to use the bed of the canal for the construction of a railroad. The bill provides that neither the Delaware, Lackawanna & Western, nor the Delaware & Hudson Canal Company shall acquire an interest in any form in the corporation. The canal is one of those known as the lateral canals, and extends from the Erie Canal at Utica south by west to Binghamton, 97 miles. Its present traffic is small, a railroad running parallel and near to it for its whole length.

Dubuque Southwestern.

Two lines are to be surveyed for the new route from Monticello, Ia., into Dubuque and it is intended to begin work as soon as the final location is made. As soon as the road is finished the track from Monticello to the present junction with the Illinois Central at Farley will be taken up.

Northern Pacific.

The opposition to the subsidy voted by the Montana Legislature to this road has, apparently, considerable strength. In Helena and other places in the Territory the anti-subsidy men are organizing and purpose doing all in their power to secure an adverse vote at the coming election.

Meadville & Erie.

A meeting was held in Meadville, Pa., March 21, to consider the question of direct connection with Erie by rail. Letters from Thos. Carroll, of the Erie Southern road, Cyrus Clark, of the New Castle & Franklin, and Vice-President McCullough, of the Pennsylvania Company, were read. The Erie Southern declined to enter into any arrangements whatever. The Pennsylvania is reported to have offered to furnish rolling stock for a road connecting with the Erie & Pittsburgh, and to guarantee the interest on the cost of the road. The meeting adjourned without taking any definite action.

Meetings.

The following companies will hold their annual meetings at the times and places given:

Allegheny Valley, at the office in Pittsburgh, Pa., April 11, at 11 a. m.

Catawissa, in Philadelphia, April 4.

Lake Shore & Michigan Southern, in Cleveland, O., May 3. Transfer books will be closed from April 1 to May 4.

Quebec & Lake St. John.

The city of Quebec has voted to grant a bonus of $90,000 for the proposed extension of this road.

Chicago, Danville & Vincennes.

Receiver Anderson reports for January and February as follows:

Balance on hand Jan. 1.....		$43,744 08
Receipts on current account.....	$142,967 55	
" " account of former receivers.....	162 06	
		143,129 61
Total.....		$186,873 69
Paid on vouchers, pay-rolls, etc.....	$108,735 92	
" " account former Receivers.....	240 51	
" " " of old floating debt..... ..	38,626 70	
		147,703 13
Balance on hand March 1.....		$39,170 56

The disbursements exceeded the receipts by $4,573.52.

Another plan of reorganization has been proposed, which is summed up as follows:

1. The company (present stockholders) to elect a new board of directors, a majority of whom are to be nominated by the first-mortgage bondholders, such nominating power to continue until interest has been paid on the bonds for three years. Bondholders to be given votes as soon as it can legally be done.

2. Holders of stock and junior securities to assume and provide for all liens, claims and litigations.

3. Securities of the company to be as follows: Illinois Division first-mortgage bonds, $2,500,000, to remain as at present. A new first mortgage for $1,500,000 on the Indiana Division to be executed, $900,000 to be exchanged for 60 per cent. of the present Indiana Division bonds, and $600,000 used to complete the road. Income bonds to the amount of $2,000,000, convertible into stock and bearing 7 per cent. interest, to be issued, $525,000 to fund first-mortgage coupons to April 1, 1876; $1,020,000 to exchange for 40 per cent. of present Indiana Division bonds and to fund coupons on those bonds up to April 1, 1877; the remaining $455,000 to be used to settle secured claims, second-mortgage and chattle-mortgage bonds, etc. Stock to be issued for unsecured floating debt claims.

This plan has evidently been prepared in the interest of the present stockholders. It will be unacceptable to many bondholders from the fact that it will practically continue in power the old management and that it recognizes the chattel mortgage and other claims whose legality is disputed.

Dividends.

Dividends have been declared by the following companies:

Lehigh Valley, 2½ per cent., quarterly, payable April 15.

United New Jersey, 2¼ per cent., quarterly, payable April 10.

Philadelphia & Trenton, 2½ per cent., quarterly, payable April 10.

Erie.

The negotiations for the laying of a third rail from Waverly, N. Y., east to Jersey City, have fallen through.

Messrs. Fleming and Miller, the representatives of the English bondholders' committee, have returned to England. It is reported that they have agreed, in conference with the committee of directors of the company, to recommend the funding of one-half the coupons on the first consolidated mortgage bonds for five years, every alternate coupon to be paid in cash, and also the funding for five years of all the coupons on the second consolidated bonds; the surplus earnings of the road to be used to narrow the gauge and make other improvements. This arrangement to be coupled with one for an assessment on the stock.

Lafayette, Muncie & Bloomington.

The trouble between this company and the Indianapolis, Cincinnati & Lafayette about the crossing near Lafayette, Ind., has broken out again in an active form. The crossing was taken up by the Indianapolis, Cincinnati & Lafayette Company, but was subsequently relaid by the other party. The Indianapolis Company, however, applied to the United States Court and procured a temporary injunction restraining the other company from using the crossing or interfering in any way until the hearing of the case before the Court at its next term.

Northern, of Long Island.

A survey has been begun for a projected line to run from Williamsburg, N. Y., through Glendale, Richmond Hill and other Long Island towns to Huntington.

Philadelphia & Reading.

E. Borda and others have begun suit in the Philadelphia Court of Common Pleas to recover an average of 50 cents a ton overcharged on some 4,000,000 tons of coal shipped over the road in 1868, 1869, 1870, 1871 and 1872. The claim is that unjust discrimination was exercised toward the plaintiffs, coal for other firms being carried for less rates than for them. The Court has granted a rule requiring the production of defendant's account books.

Illinois Central.

The suit of Wm. E. Rutan against this company, which is to come up for trial at the May term of the United States Circuit Court at Des Moines, Ia., is a test case under the Iowa rail road law. It is said that the company's case is based, not on a claim that the law is unconstitutional, but on the ground that the State has no right to compel it to work its road at a loss or for rates which are unremunerative.

Western Maryland.

The question having arisen whether the City of Baltimore had any right to tax stock of this company owned by residents of the city, a test case has been made and will shortly be tried before the Maryland Supreme Court.

Rome, Watertown & Ogdensburg.

The track of the Lake Ontario Division was completed to Lewiston, N. Y., March 23, and connection made there with the Lewiston Branch of the New York Central & Hudson River. This completes the work of track-laying on this division. Lewiston is 76.4 miles westward from Charlotte and 146.2 miles from Oswego.

The road just completed was begun in July, 1871, and the first rail was laid at Oswego in May, 1873, by the Lake Ontario Shore Railroad Company, which finally failed and defaulted on its bonds after completing the road to Ontario, 52 miles from Oswego, and grading it some distance further. In September, 1874, the road was sold under foreclosure of mortgage and a new company was organized, which was shortly afterward consolidated with the Rome, Watertown & Ogdensburg. Regular trains now run only to Charlotte, but as soon as the ballasting is finished they will run through to Niagara, using the track of the New York Central branch road from Lewiston.

A company was organized some time ago to build a new bridge over the Niagara River at Lewiston. It is still in existence, we believe, but is not doing anything at present.

Brasil & Bainbridge.

Arrangements are being made to organize a company to build a railroad from Brazil, Ind., northeast about 25 miles to Bainbridge, with the object of connecting there with the Indianapolis, Decatur & Springfield road, now under construction.

James River & Kanawha Canal.

The private stockholders are most of them bitterly opposed to the construction of a railroad from Buchanan to the Chesapeake & Ohio at Clifton Forge, in place of the extension of the canal. It is understood that an injunction will be sued out if any attempt is made to begin work on the road.

Green Bay & Minnesota.

The people of La Crosse, Wis., have voted by a large majority in favor of the city subscription of $75,000 to this company's stock, in consideration of the construction of a branch which will give the road a connection with La Crosse. The intention is to use the La Crosse, Trempeleau & Prescott track from Marshland to Onalaska and to build some five miles of new road from that place to La Crosse.

Pacific Mail.

The Panama Railroad Company, in view of the large debt due to it by the Pacific Mail Company, has given notice to that company that it protests against the purposed issue of bonds, and will, if necessary, take legal steps to enjoin it.

Milwaukee, Lake Shore & Western.

Negotiations are now in progress between this company and the towns which formerly voted subsidies as to the building of the proposed extension from Appleton, Wis., to New London. It is thought that most of the subsidies can be realized.

Eastern Counties.

Under the new arrangement of the Nova Scotia Government, this company is to receive a subsidy of $5,000 per mile in money for the road from New Glasgow, N. S., eastward to the Strait of Canso, and in Cape Breton from the Strait to the terminus on Bras d'Or Lake. The company will also have $5,000 for the establishment of a steam ferry across the Strait; 300,000 acres of land in Nova Scotia; mining rights on 150,000 acres in Cape Breton, and it will receive from the Dominion Government the 51 miles of finished road forming the Picton Branch of the Intercolonial, from Truro to Picton.

Nova Scotia, Nictaux & Atlantic Central.

The Government subsidy proposed for this road and passed by the Nova Scotia Legislature provides for a grant of $5,000 per mile for about 64 miles of road from Middleton, N. S., to Lunenburg, leaving the extension to Liverpool for further consideration.

Warren & Southern.

A railroad convention is to be held in Hopedale, Harrison County, O., April 20, to organize a new company or arrange for the consolidation of existing companies for the purpose of building a railroad from the Baltimore & Ohio at some point in Belmont County, O., northward to Warren in Trumbull County. Railroad contractors are invited to be present, as well as parties interested in the road.

Massillon & Coshocton.

This project for a road from Massillon, O., south by west to Coshocton, about 45 miles, has been revived and is now being strongly advocated. A considerable number of subscriptions in money and right of way have lately been secured, and the country along the line is being pretty well canvassed.

Ohio Short Line.

A company by this name has filed articles of association in Ohio, the road to be built being from Millbrook, O., westward to the Indiana State line. The capital stock is fixed at $200,000.

The New York Railroad Commission Bill.

A committee of the New York Cheap Transportation Association appeared before the Senate Committee on Railroads at Albany, N. Y., March 28, and presented arguments in favor of the bill providing for a railroad commission in New York similar to that of Massachusetts. The members of the committee strongly advocated the passage of the bill, and represented the benefits to be expected from the commission.

New York, Boston & Montreal.

In the suit brought by the trustee to foreclose the mortgage of Nov. 1, 1869, executed by the New York & Boston Company, notice is given to bondholders that they must appear and prove their bonds before Albert Stickney, Referee in the case, who will sit for that purpose at his office, No. 120 Broadway, New York, April 15.

New Orleans, Mobile & Texas.

In the New York Supreme Court recently Wm. Williams brought suit to recover $8,000 due on unpaid coupons, and levied an attachment on all property of the company in the State.

Central Pacific.

In addition to the suit noted last week brought by J. K. Robinson, a stockholder, the same person has brought supplementary suits against the company, Leland Stanford, C. P. Huntington, Mark Hopkins and other directors. One suit is to restrain the defendants from conveying away any private property acquired by them since obtaining control of the railroad, the other to restrain them from using the funds of the railroad corporation to pay interest on $1,600,000 worth of bonds of the California Pacific Railroad, guaranteed by defendants in the name of the Central Pacific, and used in the purchase of the California Pacific; also to set aside said guarantee.

Missouri, Kansas & Texas.

The new plan for the reorganization of this company, as officially stated, proposes:

"1. That the first-mortgage bondholders shall accept interest in gold, at the rate of 4 per cent. per annum, for the next three years, and 5 per cent. for the ensuing three years, and shall fund past-due coupons, and the difference between above rates and 7 per cent. in a new second-mortgage income bond, at 80 per cent. of its par value.

"2. That the floating-debt creditors shall accept any first-mortgage or Booneville Bridge bonds held as collateral, in payment of their claims, as far as so secured, at certain equitable rates; and, for insecured claims shall receive new second-mortgage income bonds, as above, at the same rate of 80 per cent.

"3. That the present second mortgage shall be canceled, and the new mortgage executed for $10,000,000. The bonds to bear interest at 6 per cent. per annum in cash, if the net earnings of the railway admit, otherwise in certificates redeemable with 6 per cent. interest out of revenue, before payment of any dividend upon the stock.

"4. That the net earnings, in excess of the amount required for above purposes, are to be applied towards increasing the cash payments upon the first mortgage coupons, and should *two* successive first-mortgage coupons be paid in full, the road is to be surrendered to the stockholders. That until then, and

pending the proposed agreement, the Union Trust Company of New York, Trustee under the mortgages, shall take possession of the railway and its property, and manage the same in accordance therewith, assisted by an Advisory Board, to consist of five members appointed by bondholders, creditors and directors of the Railway Company and two by the Trust Company.

"Should the agreement be adopted, application will be made to the courts to the end that the Trust Company be put in possession, and that the first 2 per cent. payment, for which funds are understood to be on hand, may be made."

Agreements for signature are to be found at the office of the Union Trust Company of New York. It is stated that a large number of bondholders have approved the plan.

Atlantic, Mississippi & Ohio.

By mail we have accounts of a meeting of the bondholders, held in London, England, March 4, on call of the trustees appointed under the agreement of December, 1875. Mr. John Collinson, of the firm of Collinson & Co., the company's London agents, read a long statement setting forth the agreement made with the bondholders and approved by them at the meeting held in January. He then stated that on Feb. 23 he had received a letter from General Mahone saying that some of the floating-debt creditors had called in claims amounting to $200,000; that the company could not pay the interest due under the agreement April 1 unless it could have the use of $500,000 of the $4,000,000 unissued bonds agreed to be deposited in London, and only then if it could negotiate their sale; that the company would only consent to deposit $3,500,000 of the bonds, and then only when four-fifths of the bondholders had signed the agreement. This last clause was subsequently changed to one-fifth by cable. Under these circumstances Collinson & Co. had arranged to resign the company's agency, and would co-operate with the bondholders in such action as they might see fit to take.

The bondholders voted to appoint a committee to take such measures as might be thought necessary to protect their interests and to report from time to time. The committee consists of Capt. H. W. Tyler, R. E.; John Robertson, J. C. Gooden, W. Brown, C. W. Lomer, E. Lomer, Henry Tredway, George Clarkson, Robert Monkton, J. L. Hale, T. R. Grassie and P. Myburgh. They have power to add to their number.

The hearing on the application for a receiver came up in the United States Circuit Court in Richmond, Va., March 22, when the case was adjourned over to April 6, by arrangement between the counsel and the Court.

The Virginia Legislature has instructed the Attorney General to watch the progress of the suit and to protect the interests of the State.

Sharpsville.

A company by this name has been organized to build a railroad from Sharpsville, Pa., east by south to the Butler County coal and oil fields.

Gilbert Elevated.

It is announced that the contract with the Edgemoor Iron Company, of Wilmington, Del., for the construction of this road has been signed. It provides for a double track elevated road, supported on two sets of columns, to run from the Battery in New York City through Church, Chambers, West Broadway, South Fifth avenue, West Third street and Sixth avenue to Central Park, about five miles. The work is to be completed by Aug. 1.

Maine Central.

The annual meeting was held in Augusta, Me., March 22, when none but routine business was transacted. It was voted to reduce the number of directors from thirteen to eleven. No change of importance was made in the board of directors, indicating that the controlling interest in the stock is still held by the Eastern Railroad Company or by parties in its interest. The number of shares voted was 27,062.

Sunbury & Lewistown.

The adjourned sale was held in Philadelphia, March 23, and the road was sold to John K. Valentine, Attorney, for $161,000. A protest was read by a representative of some of the bondholders, who claimed that the sale was illegal as it had not been advertised as directed by the bondholders. On the other hand it was stated that the original date of sale had been fully advertised and sufficient notice given of the postponement.

The road is 43 miles long from Lewistown, Pa., to Selinsgrove. It was formerly leased to the Pennsylvania, but has not been operated at all for over a year. The price obtained will do little more than pay legal expenses and costs incurred in the foreclosure. The first mortgage was for $1,200,000.

Delaware & Bound Brook.

It is announced that this road will be opened for traffic May 1 and that trains will be run between New York and Philadelphia by the new line thereafter.

The Trenton *State Gazette* of March 23 says: "The engineers of this road filed their survey of the route of the proposed branch road from their track to the city of Trenton, in the office of the Secretary of State yesterday. The route is as follows: Beginning at a point in the middle of the south track of the double track of the main line of the Delaware & Bound Brook Railroad, on lands formerly of Elizabeth Anderson, in Ewing township, and thence to a point in lands of Charles McGill, on the westerly side of Willow street, in the city of Trenton, the distance being about 3.6 miles."

Red River & Rio Grande.

A contract has been made with John Scullin to grade 50 miles of this road, from Sherman, Tex., southwest towards Gainesville, work to be begun early in April. Stock to the amount of $500,000 has been subscribed.

Waldo & Tampa Bay.

The right of way, franchises and any property belonging to the projected but unfinished line from Waldo, Fla., southward to Tampa Bay, were recently sold at Sheriff's sale to W. J. Woodward, of Fernandina, for $3,100. The sale did not affect the completed line of the Florida Railroad from Fernandina to Cedar Keys.

Southern Minnesota.

The Winona (Minn.) *Republican* says: "The damage caused by the floods was so great on the Southern Minnesota that Mr. Easton instructed wheat buyers along the line not to buy any more wheat, as doubts were entertained whether the road would be repaired."

The eastern section of the road runs through the valley of Root River and is peculiarly exposed to damage from flood. Late advices represent this section as having been almost destroyed by the disastrous floods of last week.

The settlers along the surveyed line west of Winnebago City are much excited by reports that the proposed extension of the road is not to be built on that line, but to the southward of it. Efforts are being made to prevent any change of location.

Cincinnati, Batavia & Williamsburg.

This company has been fully organized and a considerable amount subscribed to the stock. The line of the road is from Cincinnati eastward through Madisonville, Plainville and Batavia to Williamsburg. Beyond that point the line is not determined, but Portsmouth will probably be the terminus. The road is to be of 3-feet gauge and is designed to connect Cincinnati with the coal fields of Southern Ohio and to give an outlet to the country lying between the Marietta & Cincinnati road and the Ohio River. It is intended to use the same entrance into Cincinnati as the Miami Valley road, now under construction. Several short local branches are projected to connect the main line with towns whose business is desirable.

New Jersey West Line.

Recently the New Jersey Court of Errors and Appeals heard arguments on the appeal taken by the trustees under the first mortgage from the Chancellor's order directing the Receiver to sell the road. The contest is, apparently, as to whether the sale shall be conducted by the trustees or the parties represented by the Receiver. The Chancellor's original order of sale was made in the fall of 1874, but the sale was stayed, pending the result of the appeal.

Syracuse, Geneva & Corning.

The Watkins (N. Y.) *Express* says: "There are upward of 140 bids for doing the grading on the Syracuse, Geneva & Corning Railway, but the number of contractors or firms to whom the work has been awarded by Messrs. Vibbard, Ball & Stuart, original contractors, is only eight or ten. None of the contractors have less than four sections or more than twelve. The average price paid for grading is about twenty cents per yard, including a haul of one thousand feet. The entire number of contractors on the road, for all work—grading, bridging, masonry, fencing, piling, furnishing ties, etc.—is about twenty-five."

Tennessee & Pacific.

The Tennessee Board of Railroad Commissioners have resolved to sell this road at public sale, in Nashville, Tenn., May 8. The sale is in consequence of the failure of the present company to pay instalments of the money due on its purchase of the property from the State. The balance due is $124,210, payable in State bonds. The road is 31 miles long, from Nashville, Tenn., eastward to Lebanon.

Central, of Georgia.

A reduction of 10 per cent. has been ordered in all salaries and wages paid by the corporation, no exception to be made in any case whatever.

Chesapeake & Ohio.

In response to a request from Receiver Wickham for instructions, the Virginia Circuit Court has ordered that the Receiver may use his own discretion as to the disbursement of surplus funds in paying back wages due to employes, giving preference to those now remaining in the service of the road. It is ordered also that he apply surplus earnings as they accrue and as far as necessary to the payment of accrued interest on the Virginia Central bonds. This decision permits the Receiver to pay up the arrears of wages accruing prior to his appointment.

New Orleans, St. Louis & Chicago.

The United States Circuit Court at Memphis, Tenn., has concurred in the appointment of Mr. J. B. Alexander as Receiver, putting him in possession of so much of the road as is within its jurisdiction. Mr. Alexander now has legal control of the whole line. It is said that no changes of importance will be made in the management, for the present at least.

Montclair & Greenwood Lake.

The bondholders and stockholders passed over the road on a tour of inspection, in a special train, March 23. After the trip, a meeting was held, at which it was voted to authorize the issue of $100,000 of the new bonds provided for completing and repairing the road. Of this issue $80,000 are to be used to complete the eight miles from the present terminus at Monks', N. J., to the head of Greenwood Lake, which is now partly graded, and $40,000 for new equipment. The questions as to completing the Caldwell Branch and operating the Watchung Railroad, are not yet decided. It is stated that the Watchung road can be put in order and equipped for $20,000. At the meeting, a letter was read from the President of the Orange County Grange, promising the company a considerable traffic in milk when it should be completed.

Monmouth County Agricultural.

This unfinished railroad was sold, under an order of the New Jersey Court of Chancery in bankruptcy, at Freehold, N. J., last week, and the sale has been confirmed by the Chancellor. The purchasers were J. P. Lowrey and associates, and the price paid was $115,488. The road is nearly all graded from Freehold to Keyport, about 16 miles, and it is understood that the purchasers mean to complete it.

New York & Oswego Midland.

Notice is given that in the suit brought to foreclose the Western Extension first mortgage, the New York Supreme Court has appointed D. Ira Baker Referee, and bondholders are directed to appear before him at his office, No. 182 Broadway, New York, April 5, at noon, to prove their claims.

Davenport & St. Paul.

The foreclosure sale was held in Davenport, Ia., March 23. The road was bought by T. H. Myer, trustee, for account of the bondholders, the price paid being $500,000. A protest was made by a representative of the authorities of Delaware County, who claimed for the county the ownership of so much of the road as is within its limits. The sale will come up for confirmation at the May term of the United States Circuit Court.

Mr. Myer has assured the people of Davenport that the purchasers of the road will complete it from East Davenport into the city, provided the right of way is given.

Illinois & Michigan Canal.

The canal was opened for navigation from Bridgeport (the Chicago terminus) to La Salle, Ill., March 25, boats being permitted to draw 4 ft. 8 in.

ANNUAL REPORTS.

Eastern.

In our issue of Dec. 11, 1875 (page 515), was published a summary of the report of this company made to the Massachusetts Railroad Commission for the year ending with Sept. 30, 1875. The report to the stockholders is for the fiscal year ending with November. The statement of the mileage owned and worked is the same in both reports (117.99 miles owned and 164.06 leased).

The capital account is given more in detail as follows:

Stock ($42,356 per mile)	$4,997,600 00
Bonds ($66,197 per mile)	7,691,448 00
Coupon notes ($31,159 per mile)	3,676,500 00
Temporary loans ($23,066 per mile)	2,731,525 00
Borrowed money	11,599 00
Pay-rolls and current accounts	276,956 55
Coupons and dividends unpaid	92,051 86
Interest accrued, but not yet payable	248,240 40
Due other roads, etc	127,308 17
Total ($168,296 per mile)	$19,857,249 98

An arrangement has been made for settling the difficulties of the company by the funding of all its debt in new mortgage bonds, the trustees for the mortgage to have absolute control of the property; its execution depends upon the passage of a bill legalizing the agreement, which is now pending in the Massachusetts Legislature.

The property owned by the company outside of its road and equipment was given in the report to the Commissioners, in which, however, our reprint gave the Maine Central stock at $589,895.80, instead of $859,895.80, as it should have done.

The earnings and expenses were:

	1874-75.	1873-74.	Inc. or Dec.	P. c.
Earnings	$2,787,143 25	$3,089,993 91	Dec. $372,780 66	8.9
Expenses	2,045,040 54	1,961,011 67	Inc. 64,028 87	3.2
Net earnings	$742,102 71	$1,078,922 24	Dec. $336,819 53	31.2
Gross earnings per mile	$9,881	$10,848	Dec. $967	8.9
Net earnings per mile	2,631	3,825	Dec. 1,194	31.2
Per cent. of expenses	73.37	64.74	Inc. 8.63	13.3

The net results of the year are given as follows:

Net earnings		$742,102 71
Portland, Saco & Portsmouth rental, paid	$87,500	
" " " accrued	37,500	125,000 00
Portsmouth & Dover rental, paid	$24,500	
" " " accrued	17,500	42,000 00
Wolfeboro rental, paid	$2,187	
" " accrued	729	2,916 00
Newburyport City R. R. rental, paid	$4,250	
" " " accrued	1,750	6,000 00
Total rentals paid and accrued		$175,916 00
Balance		$566,186 71
Interest paid, together with that accrued and unpaid Dec. 1		956,230 47
Deficit for the year		$390,043 76

The actual increase of construction account during the year was $1,445,919.94, the largest items being $976,108.58 on account of Charlestown property, $340,512.51 discounts and $73,064.32 excess of cost of steel over iron rails. Property account was increased by $862,709.75, of which $859,895.81 was for purchase of Main Central stock.

The funded debt loan of $2,000,000 authorized at the annual meeting on Feb. 1, 1875, was placed at 85, netting $1,700,000, which was disposed of as follows:

Paid on contract for 5,862 shares Main Central	$360,642 50
Austin-Street estates, construction	272,000 00
Bills audited, chiefly construction	212,167 69
Floating debt incurred in construction	855,189 81
Total	$1,700,000 00

The directors' report is very long, giving a full and interesting history of the company, its various branches, extensions and leased lines and of the expansion and reckless expenditure which have led to its present embarrassments. The many mistakes made in its investments, the unproductive nature of some of its lines and other past faults are frankly acknowledged. This part of the report can best be summed up in the following table of the actual and estimated losses incurred during the period of expansion, which is given in the report:

On Lawrence Branch	$350,000
Marblehead Junction collision	88,000
Wenham collision	34,000
South Reading Branch	650,000
Tuckerman defalcation	222,780
Removal of passenger terminus to Boston	500,000
Revere accident	510,600
Lynn depot and lands	300,000
Newburyport City R. R. lease	12,000
Portsmouth, Great Falls & Conway lease	650,000
" " " " discount on bonds	100,000
Swampscott Branch	185,000
Wolfeboro R. R. construction and lease	300,000
Essex Branch	100,000
Seabrook collision	70,000
Portsmouth mill-pond purchase	15,000
Noble's Island purchase	20,000
Portsmouth & Dover lease	125,000
Excessive cost of steel rails bought under contract	129,000
Electric signals	50,000
Boston Bridge fire, 1873	79,000
East Boston fire, 1873	35,000
Mill Pond land purchase at Charlestown	500,000
Sterling loan, discount	278,000
State-prison land purchase	25,000
Land purchase from Boston & Maine Co.	68,000
Loss by competition with Boston & Maine R. R.	1,200,000
Maine Central stock	500,000
Austin-Street estate purchase	700,000
Ten-year notes, discount	139,600
Sinking fund loan, discount	300,000
Total actual and estimated losses	$8,245,980

The report thus admits that this great sum, equal to 58.4 per cent. on the present funded debt, has been absolutely lost and sunk, leaving no actual property to represent it. While no defalcation or actual dishonesty has been discovered or is imputed to any one, there has been a most deplorable looseness of management and recklessness in expenditure, and, apparently, a total absence of forethought and calculation as to the ultimate result of the enterprises which the company has been led to undertake. There has been also, apparently, on the part of former boards a culpable carelessness, a lack of intelligent supervision of the affairs of the company, and an actual ignorance of its real condition.

The board is now engaged in a general reduction of expenditures. A number of superfluous offices have been abolished, the pay-rolls have been cut down wherever possible, train service reduced to the actual necessities of the road, and all other outlays cut down as much as can at present be done. Arrangements have been made to do away with the present complicated system of book-keeping and to return to a more simple and intelligent system of accounts. A supplementary contract has been made under which the rental of the Portland, Saco & Portsmouth road is reduced for two years from 10 to 6 per cent., and provision has been made to pay the rental accrued.

The board believes that the agreement made with the creditors is as good as could be had under the circumstances, and believes also that it will be eventually possible for the road to recover its standing and for the stockholders to retain a valuable interest in the property. It is not to be denied, however, that some of the provisions of the agreement will impose a strain upon the resources of the road, which it will require all its latent, and as yet undeveloped, capacity to meet.

Cleveland, Columbus, Cincinnati & Indianapolis.

This company owns or operates the following lines:

	Miles.
Cleveland, O., to Columbus	136.0
Galion, O., to Indianapolis, Ind	203.0
Delaware, O., to Cincinnati	130.5
Total	471.5

Of this the company owns 391 miles and leases 80.5, the leased line being the Cincinnati & Springfield road, from Springfield, O., to Cincinnati, in which a controlling interest is owned.

The equipment with which these lines are worked consist of 149 engines, 51 passenger, 8 smoking, 8 sleeping, 2 parlor, 6 postal or mail, 23 baggage and express cars; 1,976 box, 90 White Line box, 341 stock, 570 flat, 677 coal, 67 caboose cars; one directors', 1 pay, 5 wrecking and 2 tool cars. Of these 16 engines, 15 passenger, 6 baggage and 2 postal cars; 70 box, 30 White Line, 100 stock, 100 coal and 8 caboose cars belong to the Cincinnati & Springfield Railroad. Changes during the year were two engines built and one broken up; five smoking cars built and one passenger car broken up; 67 freight cars of various classes built and 41 broken up.

The credit side of the capital account at the close of the year, Dec. 31, 1875, was as follows:

Capital stock ($15,000,000, less $8,200 held by company)	$14,991,800 00
Bonds of various issues	6,170,000 00
Bills payable	60,000 00
Dividends unpaid	22,547 78
Bills audited	346,437 56
Dividend of Feb. 1, 1876	449,718 00
Balance to surplus account	222,587 74
Total	$22,263,091 08

The stock is $38,342 and the bonds $15,780 per mile owned. The assets other than road and equipment include $300,000 stock, $676,750 bonds and $73,998.40 advances to Indianapolis & St. Louis Company; $526,000 bonds and $814,776.63 advances to Cincinnati & Springfield; $129,235.77 Dayton & Union bonds and stock; $161,898.75 Columbus Union Depot bonds and stock; $28,000 in other securities and $46,339.89 invested in woodlands, stone quarry, etc.—a total of $2,757,000 of assets aside from the road and equipment. The securities are reckoned at cost.

During the year Messrs. Drexel, Morgan & Co., under the contract previously made, took $1,500,000 of the company's consolidated bonds at 90, in addition to $1,000,000 taken by them in 1874. The company paid under contract obligations $235,432 to the Indianapolis & St. Louis; $167,553.58 to the Cincinnati & Springfield; $188,794.63 for construction account; $203,185.04 in redemption of notes given for purchase of property in Cleveland and smaller sums for other accounts, the whole amounting to $836,366.15, which was met from the sale of these bonds. The prospects of the Indianapolis & St. Louis road are better than ever before.

Early in the year the stock of the Empire Transportation Company held was sold and the contract with that company modified.

There were used in repairs during the year 3,548.47 tons Bessemer steel rails, 2,545.13 tons re-rolled iron rails, 10,650 repaired rails and 140,308 cross-ties, besides joints, spikes' etc. There are now 237 miles Bessemer steel in the track. There were laid 17,957 feet new sidings, two spans, 75 feet each, of iron bridge to replace wood, and 16,869 rods new fence. The buildings and bridges were kept in good repair.

The company has accepted a gift of 100 acres of land at Brightwood, near Indianapolis, and has begun the erection of new shops there, to replace the old ones in Indianapolis which are insufficient. This will leave a valuable tract of land, now occupied by the old shops, to be sold or rented.

The work done during the year was as follows:

	1875.	1874	Inc. or Dec.		P. c.
Passenger train mileage.	925,296	799,085	Inc..	126,211	15.8
Freight " "	3,069,180	3,274,554	Dec..	205,374	6.3
Other " "	164,115	139,349	Inc..	24,766	17.7
Total train mileage	4,158,591	4,212,988	Dec..	54,397	1.3
Passengers carried	780,470	668,451	Inc..	111,929	16.7
Passenger mileage	30,497,320	28,951,002	Inc..	1,546,318	5.3
Tons freight carried	1,611,174	1,531,952	Inc..	79,222	5.2
Tonnage mileage	263,311,981	264,163,951	Dec.	851,970	0.3
Average rate per passenger per mile	2.541 cts.	2.716 cts.	Dec..	0.175 cts.	6.4
Average rate per ton per mile	1.005 cts.	1.192 cts.	Dec..	0.187 cts.	15.6

Of the passenger mileage 35.8 per cent. was of through and 64.2 per cent. of way passengers. Of the tonnage mileage 73 per cent. was of through and 27 per cent. of way freight; 71.7 was of eastward and 28.3 per cent. of westward bound freight.

The local freight tonnage has been more than maintained, and there has been a satisfactory increase of coal tonnage. The movement of stone and iron has exceeded that of any previous year. The earnings for the year were as follows:

	1875.	1874.	Inc. or Dec.		P. c.
Freight	$2,647,225 39	$3,148,197 40	Dec..	$500,972 01	15.9
Passengers	774,933 75	786,249 76	Dec..	11,316 01	1.4
Mail	82,404 76	74,427 38	Inc..	7,977 38	10.7
Express	81,069 04	83,696 73	Dec..	2,627 69	3.1
Rents	52,044 01	60,981 52	Dec..	8,957 51	14.7
Interest and dividends	136,540 33	95,053 29	Inc..	41,487 04	43.6
Total earn'gs.	$3,774,217 28	$4,248,606 08	Dec..	$474,388 80	11.2
Working expenses	2,726,876 47	3,182,155 04	Dec..	455,278 57	14.3
Taxes	163,316 32	163,776 05	Dec..	459 73	0.3
Total expenses	$2,890,192 79	$3,345,931 09	Dec..	$455,738 30	13.6
Net earnings	$884,024 49	$902,674 99	Dec..	$18,650 50	2.1
Gross earn. per mile	8,005	9,011	Dec..	1,006	11.2
Net earn. per mile	1,875	1,914	Dec..	39	2.1
Per cent. working expenses	72.25	74.90	Dec..	2.65	3.5
Per cent. exps. and taxes	76.58	78.75	Dec..	2.17	2.8

The income amount may be summed up as follows:

Net earnings		$884,024.49
Interest on bonds	$383,763.30	
Dividend of 3 per cent	449,718.00	
		833,481.30
Surplus for the year		$50,543.19
Balance from 1874		275,508 73
Profit on sale of Empire Transportation Co. stock		47,717.14
Total		$373,769.06
Discount on $1,500,000 bonds sold	$150,000.00	
Worthless accounts charged off	1,181.32	
		151,181.32
Balance to 1876		$222,587.74

President Devereux's report says:

"The decrease of earnings is largely due to the unprecedented low rates of freight prevailing throughout the greater portion of the year, arising from a struggle of extraordinary severity and long continuance between rival trunk lines, coupled with the unsettled and feverish condition of the business of the country.

"Rates, depressed to such an unusual degree, with no exception as to kind or amount of traffic, had brought about a condition of affairs by midsummer as threatened the worst financial results to all roads, involving the vital interests of the stock and bondholders of American railways, and affecting as well State and local prosperity.

"It seemed not to be generally appreciated that, in the undeviating fall, year by year since 1867, of the rail transportation rates, the railroad lines had reached in 1874 *almost* the lowest practicable limit.

"In the case of your railway the average freight rate obtained in 1874 was but 1.192 cents per ton per mile, the through freight rate eastward being but 0.921 cents per ton per mile.

"As low as these rates were, as cheaply served as had been all communities in transportation affairs, the results of the year just closed show a further decrease in rates, the through eastward rate being but 0.751 cents per ton per mile, and the average rate of freight having fallen to 1.005 cents per ton per mile.

"Only in the restoration and maintenance of a just and reasonable compensation for the carriage of traffic is the assurance of net earnings, and which shall secure something approaching uniform financial success or reliability in the operation of western railways.

"The practical effect of this depression of rates, growing out of conflict and unlicensed rivalry, is shown by the fact that if the low rates of 1874 had been maintained upon the freight traffic of 1875, the net earnings from that source would have been increased $491,458.42, while the income from passenger business would have been augmented by $53,373.45.

"The tonnage of the year has not materially varied from that of 1874. The policy has been rather to avoid at times increasing tonnage, from the certain knowledge of financial loss in its carriage, but endeavoring to keep the railway and the communities and interests which it served in thorough accord.

"And at no time in its past history has the railway been in a better condition to meet every and all possible requirements, either of the present or future, in the amount and economical management of transportation demand."

RAILROAD LAW.

The Maine General Railroad Law.

The general law passed by the late Maine Legislature provides that any number of persons not less than 10, a majority being citizens of the State, may form a company for the purpose of building and operating a railroad. Articles of association must set forth the road to be built, length, etc., and the amount of capital stock, which must be at least $6,000 per mile for 4 feet 8½ inches gauge, and $3,000 for a narrow gauge. The articles must also name not less than five directors, who are to act until the company is fully organized.

Section 2 provides that at least the amount per mile named must be subscribed to the stock and 5 per cent. paid in, before the articles can be filed.

Section 3 provides that when the conditions are complied with to the satisfaction of the board of railroad commissioners, they shall approve the articles, and the Secretary of State shall thereupon issue a certificate of incorporation in the form provided.

Section 4 provides that a meeting to fully organize the company shall then be called on at least seven days' notice.

Section 5 authorizes the increase of capital stock by a vote of two-thirds of all outstanding stock at a meeting called for the purpose.

Section 6 provides that survey and location of the line must be completed within two years from the formation of the company and submitted to the railroad commissioners for approval, when approved maps must be filed with the commissioners and the county clerk of each county through which the road passes. It provides further that no railroad shall be made across tide waters where vessels can navigate, without special permission of the Legislature first obtained.

Section 7 provides that if any company formed under the law does not within three years begin the construction of the road and expend 10 per cent. of its capital thereon, it shall cease and determine its corporate existence.

Section 8 refers again to the filing of maps of the road and the land taken with the Secretary of State and the county clerks. The maps must be in a uniform style and scale, to be fixed by the railroad commissioners.

Section 9 provides that upon complaint of responsible persons the railroad commissioners may revise the passenger and freight tariffs of any road and reduce the rates if necessary, for a time not to exceed one year.

Section 10 merely provides the fees to be paid the railroad commissioners in cases arising for their action.

Minnesota Railroad Legislation.

The late Legislature of Minnesota passed a law providing for the reorganization of bankrupt companies. When any railroad is sold under foreclosure of mortgage the purchasers are thereby to acquire all the rights, powers, etc., which the original company had. The purchasers must meet within 30 days after the conveyance under the sale, and after due public notice given, and organize a new corporation, and such corporation must file articles with the Secretary of State, the same as are required from all new companies, and shall thereupon become a legal corporation with all the rights and powers of the old company. The law also provides that, in granting a decree of foreclosure, the Court may provide for the payment from the proceeds of the sale or by the purchasers of all sums due to employes of the bankrupt company; and may also protect the ownership of persons who may have a share in any warehouse, siding, etc., upon or adjacent to the track of the road.

Another law requires companies to build good and sufficient cattle guards at all road crossings and to fence their roads within six months from the passage of the act. Failure to comply with the law shall be taken as *prima facie* evidence of negligence on the company's part in any action for damages to stock or persons.

LOCOMOTIVE RETURNS, DECEMBER, 1875.

Master Mechanics of all American railroads are invited to send us their monthly reports for this table.

NAME OF ROAD.	Number of miles operated	Number of Locomotives in service	Mileage: Total	Mileage: Average per Engine	No. Miles run to: Ton of Coal	No. Miles run to: Cord of Wood	No. Miles run to: Pint of Oil	Average No. of freight cars hauled	Cost per Mile in Cents for: Repairs	Fuel	Stores	Miscellaneous	Engine'rs, firemen, and wipers	Total	Av. c'st of Coal, per ton or bush'l	Wood per cord
															$	$
Allegheny Valley	259	66	142,593	2,161	33.70	....	19.80	....	4.85	4.37	0.79	....	7.17	17.18	1.37	3.70
Atlantic & Great West'n (First & Second Div.)	228	82	234.868	2,864	37.44	....	18.37	....	3.28	5.97	0.59	0.66	6.23	16.73	2.09	3.15
" " (Third & Fourth Div.	197	48	133,192	2,775	37.44	....	22.07	....	4.92	5.97	0.49	0.75	6.12	18.25	2.09	3. 5
" " (Mahoning Division)	83	55	94,064	1,710	37.44	....	19.81	....	4.63	5.97	0.45	0.63	6.04	17.72	2.09	3.15
Cairo & Vincennes	157	11	31,654	2,878	37.30	....	11.40	....	2.78	4.34	0.45	....	5.91	13.48	1.56	[illegible]
Central Pacific (Western Division)*	173.4	43	102,107	2,375	39.32	....	14.05	....	10.62	17.89	0.88	0.45	9.73	39.57	7.00	5.00
" " (Sacramento Division)*	119.5	42	92,339	2,199	69.48	29.19	11.71	....	8.84	16.97	1.13	0.47	9.19	36.60	7.00	5.00
" " (Truckee Division)*	204.5	28	63 048	2,252	32 04	27.84	13.01	....	13.99	20.12	0.96	0.51	9.75	45.33	7.00	5.00
" " (Humboldt Division)*	236.6	23	64,138	2,788	35.63	....	14.80	....	8.70	19 72	0.77	0.42	8.26	37 87	7.00	5.00
" " (Salt Lake Division)*	182.8	25	62,063	2,483	35.54	....	14.36	....	7.40	19.76	0.91	0.48	8.33	36.88	7.00	5.10
" " (Oregon Division)*	151.48	7	21.474	3,068	....	41.38	18.46	....	3.18	12.09	0.71	0.21	8.68	24.87	....	5.00
" " (Visalia Division)*	2.1.8	17	39,617	2,330	55.75	....	16.50	....	5.00	12.64	0.79	0.42	8 40	30.25	7.00	5.00
Cleve., Col., Cin. & Ind. (Columbus Div.)	138	56	163.173	2.914	41.56	40.62	37.31	....	3.14	6.47	0.53	....	6.55	16.69	2.48	3.50
" " " (Indianapolis Div.)	207	62	209,156	3,373	42.78	48.50	26 14	....	4.34	5.47	0.58	....	6.54	16.93	2.03	3.50
" " " (Cincinnati Div.)	130	28	88,131	3,148	33.54	....	27.40	....	2.89	6.20	0.53	....	6.40	16.02	1.93	3.50
Cleveland & Pittsburgh†	199	76	149.473	1,892	52 88	....	20.33	14.10	3.59	3.27	0.67	4.45	6.98	18 96	1.40	1.60
Cleveland & Mahoning Valley	41	6	14,676	2.446	47.49	....	18.12	....	6.99	4.98	0.38	1.16	6.27	13.58	1.92	2.74
Del., Lacka. & West. (Bloomsburg Div.)	80	26	61.730	2,374	....	....	26.16	....	2.94	....	0.75	....	5.86	9.55	....	....
Hannibal & St. Joseph	294	54	133,680	2,476	36.10	....	28.00	....	3 10	5.70	0.40	....	6.9	16.80	2.00	3.00
Jeffersonville, Madison & Indianapolis	225	43	98,872	2,299	39.08	33.09	16.69	....	3.51	7.28	0.54	2.19	7.03	20.55	2 65	2.70
Kansas Pacific, Main Line‡	673	86	160 697	1,869	27.52	....	12.57	....	4.52	11.12	0.54	....	7.10	23.28	3.00	3.65
" including all branches‡	695	94	186,665	1,986	28.16	....	12.72	....	3.96	11 27	0.53	....	7.04	22.80	3.12	3.74
Kansas City, St. Jo. & Council Bluffs§	334	23	70,075	3.047	44.10	....	24.40	19.10	2.20	7.40	0.60	....	7.10	17 30	3.00	4.00
Lake Shore & Mich. South. (Buffalo Div.)‖	......	90	191,237	2,125	31.86	39.84	13 52	....	5.51	10.96	....	....	6.41	22.88	3.50	3.50
" " (Erie Div.)‖	......	114	241 380	2,117	41.60	45.74	21.92	....	3.64	8 49	....	....	6.18	18.51	3.50	4.00
" " (Toledo Div.)‖	......	83	167,552	2,019	36.68	46.80	12 96	....	4.17	10.62	....	....	6.22	20.91	4.00	4.00
" " (Mich. South. Div.)‖	......	208	416,451	2,0 2	40 72	55.30	19.59	....	4.36	9.61	....	....	6.50	20.47	4.50	3.50
Leavenworth, Lawrence & Galveston	203.7	18	22,664	1,259	52.70	....	32.30	....	4.90	6.50	0.33	....	5.70	17.43	3.37	2.40
Marquette, Houghton & Ontonagon	88	14	10,605	758	43.30	....	12.15	....	1.89	14.65	0.85	....	8.24	25.63	....	....
Northern Central (Elmira & Canandaigua Div.)	......	....	......	....	....	....	....	....	....	....	....	....	....	....	....	....
Pennsylvania (New York Division)	119.9	120	285,094	2.376	33.29	....	10.59	....	3.70	15.50	1.20	....	....	20.40	0 18	7.36
" (Amboy Division)	154.2	50	92.451	1.849	52.79	....	14.20	....	3.50	9.70	0.90	....	....	14.10	0.18	7.38
" (Belvidere Division)	102.5	39	81,098	2,079	36.73	....	11.09	....	3.70	13.90	1.20	....	....	18 80	0 18	7.37
" (West Jersey Railroad)	128.16	18	32.297	1,794	41.00	33.33	13.81	....	2.30	12.50	0.80	....	....	15.60	[illegible]	4.16
" (Philadelphia Division)	190.8	185	472,495	2 554	31.39	....	12 50	....	2.10	4.80	0.90	....	....	7.80	0.05	3.68
" (Middle Division)	131.6	116	323,105	2,785	28.87	....	19.30	....	4.40	5.10	0.70	....	....	10 20	0.05	3.68
" (Pittsburgh Division, East End)	......	77	146,682	1.905	22.67	....	18.46	....	3.10	6.40	1 20	....	....	10.70	0.05	3.68
" (Pittsburgh Division, West End)	......	119	284,866	2,394	34.14	....	13.33	....	3.00	4.3	0.90	....	....	8 2	0.05	3.68
" (Tyrone Division)	106.8	28	58.606	2,093	25.27	....	21.65	....	3.80	5.90	0.6	....	....	10.30	0.05	3.69
" (West Pennsylvania Division)	103.6	23	52,536	2 28	41.89	....	31.65	....	2.80	3.70	0 40	....	....	6 90	0.05	3.68
" (Lewistown Division)	12.5	2	4,294	2.147	53.69	....	17.18	....	0.50	2.10	0.60	....	....	4.0	0.05	3 85
" (Bedford Division)	56.5	4	9,480	2 370	29.45	....	21.10	....	2.10	5.10	0.60	....	....	7.80	0.05	3.69
Philadelphia, Wilmington & Baltimore	......	74	157,518	2 149	54.52	....	10.48	....	7.70	9.70	1.10	....	6 80	25 30	4.75	5.00
Pitts., Fort Wayne & Chicago (Eastern Div.)†	468.9	180	427,386	2.374	39.42	....	16.64	13.50	3.82	4.27	0.86	2.11	6.61	17.66	1.68	1.68
" " " (Western Div.)†	280	110	320,283	2.91	42.60	....	17 61	17.70	3.25	4.81	0.46	2.47	6 45	17.44	2.05	2.05
Pitts., Cin. & St. Louis (Little Miami Div.)	197	37	99,320	2,684	44.44	....	12.33	....	3.94	5.98	1.08	3.52	6.81	21.23	2.50	3.00
" " (Pittsb. & Col. Div.)	224	83	250,526	3.018	29.33	....	15 79	....	6.48	4.38	0.84	3.30	6 48	21.48	1.20	3.50
South Carolina	242	43	91,946	2.138	....	40.66	22.83	....	3.75	5.73	0.74	....	....	10.22	....	2.23
Stockton & Copperopolis‖	49	3	3 651	1,217	....	55.32	12.33	....	4 77	9.04	1.20	0 84	9.58	25.43	....	5.00
St. Louis, I. M. & South. (Arkansas Div.)	325	30	92,530	3,084	....	48.50	17.50	....	2.22	5.61	0.65	....	7.09	15.57	....	2.74

Year 1875.

NAME OF ROAD.	Number of miles operated	Number of Locomotives in service	Mileage: Total	Mileage: Average per Engine	Ton of Coal	Cord of Wood	Pint of Oil	Average No. of freight cars hauled	Repairs	Fuel	Stores	Miscellaneous	Engine'rs, firemen, and wipers	Total	Coal, per ton or bush'l	Wood per cord
Allegheny Valley	259	69	1,642, 25	23.805	36.40	....	19.40	....	4.93	4.00	0.87	....	7.36	17.25	1.35	2.70
Atlantic & Gulf	346	23	706.812	30,731	....	54.38	20.28	....	6.10	....	....	....	10.70	22.00	....	2.46
Atlantic & Great West. (First & Second Div.)	228	81	2,587.826	31,949	41.87	....	18.86	....	3.95	5.60	0.56	0.61	6.24	17.06	2.18	3.21
" " (Third & Fourth Div.)	197	48	1,361,048	28,355	41.87	....	21.87	....	5.18	5.62	0.44	0.83	6.00	18.07	2.18	3.21
" " (Mahoning Division)	83	55	1,362,733	24,777	41.87	....	19.40	....	3.77	5.59	0.46	0.60	5.98	16.39	2.18	3.21
Clev., Col., Cin. & Ind. (Columbus Div.)	138	62	1.714,397	27,652	44.70	58.30	38.31	....	3.00	5.52	0.54	....	6 71	15.77	2.25	3 50
" " (Indianapolis Div.)	207	65	2,155,898	23 168	45.00	51.22	26.80	....	4.34	4.84	0.58	....	6.63	16.39	1.88	3.50
" " (Cincinnati Div	130	28	920,650	32,880	37 89	....	26.84	....	2.78	5.30	0.51	....	6.65	15.24	1.83	3.50
Cleveland & Pittsburgh†	199	90	1,862,388	[illegible]	53.17	....	19.14	16.10	4.03	3.28	0.69	2.88	7.03	17.91	1.45	1.80
Del., Lack. & West. (Bloomsburg Div.)¶	80	27	665.485	24,648	....	....	27.46	....	5.36	....	0.73	....	6.19	12.28	....	....
Illinois Central (Chicago Division)**	252.5	80	1,975,276	24,691	38.10	....	14.93	17.95	5.83	4.82	0.31	....	6.73	17.70	1.09	5.05
" (South Division)**	230.75	36	[illegible]	27 832	33.75	....	14.29	14.97	7.85	4.74	0.34	....	6.61	19.54	1.09	5.05
" (North Division)**	225	50	1,248,227	24.965	33.21	....	14.62	14.55	8.13	5.54	0.32	....	6.68	20.67	1.09	5.05
" (Iowa Division)**	401	60	1 393 998	23,233	23.36	....	17 92	13.01	5.28	9.1	0.27	....	6.61	21.31	2.96	5.12
Jeffersonville, Madison & Indianapolis	225	42	1,110,284	26 435	43.16	33.02	17.77	....	4. 2	6.7	0.47	4.27	6.90	20 68	2.70	2.75
Kansas City, St. Joseph & Council Bluffs§	334	31	805,052	25 970	47.00	....	25.20	19.50	5.20	7.10	0.60	....	7 50	20.39	3.06	3.67
Lake Shore & Mich. South. (Buffalo Div.)‖	......	90	1,954,235	21,714	39.88	43.50	14.53	....	5.55	8.70	....	....	6.55	20.86	3.50	3.50
" " (Erie Div)‖	......	114	2,598,957	22.798	43.92	47.57	20.76	....	5 88	8.06	....	....	6.50	20.44	3.50	4.00
" " (Toledo Div.)‖	......	83	[illegible]	22,282	36.76	47.98	13.29	....	4.72	10.46	....	....	6.27	21.45	4.00	4 00
" " (Mich. So. Div.)‖	......	208	5,114,650	24,835	42.70	56.21	19 58	....	4.42	8.98	....	....	6.88	20.28	4.50	3.50
Pitts., Ft. Wayne & Chicago (Eastern Div.)†	370.9	155	4.443,018	28,665	40.55	....	16.44	13.90	3.73	3.90	0.86	1.51	6.56	16.56	1.58	1.58
" " (Erie & P. R.R.)†	96	29	565,905	19,514	37.94	....	19.47	14.10	3 56	5.00	0.74	1.94	6.73	18.00	1 93	1.80
" " (Western Div.)†	2 0	119	3,444,381	28,944	44.00	....	17.11	18.30	3 78	4.64	0.48	2.37	6 45	17.72	2.04	2.04
Pitts., Cin. & St. L. (Little Miami Div.)	197	42	1,184,718	28,208	45.14	....	12.65	....	4.85	4.62	0.99	2.49	6.86	19.81	1.95	2.86
" " (Pitts. & Col. Div.)	224	105	2,940,289	28,003	30.18	....	15 25	....	6 05	4.72	0.86	2.47	6.66	20 76	1.33	3.05
St. Louis. I. M. & So. (Arkansas Div.)	325	30	838,860	27 963	....	45.00	17.50	....	3.09	5.62	0.50	....	7 08	16.38	....	1.56
Terre Haute & Ind. (Indianapolis Div.)	112.63	40	829 139	20,728	28.10	33.80	22.50	....	6.12	7.95	0 93	0.42	8.08	23.40	....	....
" " (Vandalia Div.)	158.3	32	940,707	29,397	34.10	26.00	22 50	....	6.01	5.39	0.95	0.50	8.08	20.94	....	....

* Switching engines allowed 6 miles per hour; helping engines actual distance and 4 miles per hour while waiting.
† Five empty cars rated as three loaded ones.
§ Three empty cars rated as two loaded ones.
¶ Cost of repairs includes one new engine built to replace old one broken up.
‡ Switching and work train engines allowed 60 miles per day.
‖ Switching engines allowed 6 miles per hour.
** Two empty cars rated as one loaded one.